DOCUMENT RESUME

ED 085 100 PS 006 987

AUTHOR	Stallings, Jane A.
TITLE	Follow Through Program Classroom Observation Evaluation 1971-72.
INSTITUTION	Stanford Research Inst., Menlo Park, Calif.
SPONS AGENCY	Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
REPORT NO	SRI-URU-7370
PUB DATE	Aug 73
CONTRACT	OEC-0-8522480-4633(100)
NOTE	547p.
EDRS PRICE	MF-$0.65 HC-$19.74
DESCRIPTORS	Achievement; Behavior; *Classroom Observation Techniques; *Classroom Research; Codification; Data Analysis; *Elementary School Students; Emotional Development; *Evaluation; *Federal Programs; Feedback; Models; Reliability; Research Methodology; Tables (Data)
IDENTIFIERS	*Project Follow Through

ABSTRACT

This report describes the third year of the national Follow Through Classroom Observation study. The aims of the study were: (1) to assess program implementation at one site for each of 12 sponsors; (2) to search out the relationships between child outcomes and teaching-learning processes; and (3) to estimate which programs incorporate processes found to be positively correlated with desired outcomes. The Classroom Observation Instrument (COI) was developed to record classroom occurrences as a way to determine whether there were planned educational variations in the Follow Through programs. Report chapters discuss the structure and function of the COI, including three classes of variables used to record interactions; the criteria for the selection of classroom observers and the observer training procedures; the sampling criteria used to select specific classrooms, focus children, and focus adults; types of data analyses; and approaches to relating classroom processes to child test outcomes. Appendices, which make up about half the document, include the Classroom Observation Instrument, the factor analysis variable list, classroom observer comments, changes in classroom observation variables from 1970 to 1971-72, and other statistical data. (SET)

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FOLLOW THROUGH PROGRAM CLASSROOM OBSERVATION EVALUATION 1971-72

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August 1973

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CONTRACT OEC-O-8522480-4633(100)

SRI Project URU-7370

The conclusions and recommendations in this report are those of the Contractor and do not necessarily reflect the views of the U.S. Department of Health, Education, and Welfare or any other agency of the government.

CONTENTS

LIST OF ILLUSTRATIONS . . . .

LIST OF TABLES . . . .

ACKNOWLEDGMENT . . . .

I INTRODUCTION 1

A. Background 2

B. Rationale and Development of the COI 4

C. Use of the Classroom Observation Instrument 6

D. Organization of the Report 11

1. Data Gathering 11
2. Methods of Analysis 12
3. Summary and Findings 14

II DESCRIPTION OF THE SRI CLASSROOM OBSERVATION INSTRUMENT (COI) 15

A. Observation Summary Form (OSF) 15

1. Classroom Summary Information 15
2. Physical Environment Information 16

B. Classroom Observation Procedure (COP). 16

1. The Classroom Check List (CCL) 16
2. The Five-Minute Observation (FMO) Preamble . . . 18
3. The Five-Minute Observation (FMO) 18

III SELECTION AND TRAINING OF CLASSROOM OBSERVERS . . . . . .

A. Selection 23

B. Training 23

C. Practice Observations 24

D. Editing and Return of Materials to SRI 25

IV THE SAMPLE AND PROCEDURES FOR THE SPRING 1972 CLASSROOM OBSERVATION 27

A. Selection of Sites 27

B. Selection of Classrooms per Site 27

C. Scheduling of Observations 30

D. Focus of Observations 31

1. Adult-Focused Observations 31
2. Child-Focused Observations 31

E. Number of Observation Days 33

F. Number of COPs per Hour and Day 33

G. Reliability Observations 34

V DESCRIPTION OF THE VARIABLES 35

A. Introduction 35

B. Variables from the Observation Summary Form (OSF) . . . 36

C. Variables from the Classroom Check List (CCL) 37

D. FMO Preamble 38

E. Variables from the Five-Minute Observation 39

1. General 39
2. Difficulties 41

F. Exploratory Analyses 42

1. The Dictionary 42
2. Investigation of FMO Language in Adult- and Child-Focused Data 45

VI PRELIMINARY ANALYSIS 49

A. Introduction 49

B. Comparison of Demographic and Entering Characteristics and Examination of Diffusion 50

1. Demographic and Entering Characteristics 50
2. Model Diffusion 53

C. Teacher Experience, Training, and Satisfaction 54

D. Assessment of Variability 56

1. Comparisons Over Time 56
2. Comparisons of Classrooms and Grades 58

E. The Reliability and Uniformity of the Observation Procedure 68

1. The Observation Data 69
2. The Weekly Rosters 70
3. The Observers' Journal 70
4. The Reliability Data 71

F. Conclusions 75

VII CLASSROOM PROCESSES

A. Introduction 79

B. Implementation at One Site 81

1. Procedures Used to Examine Sponsor Theory and Practice 81
2. Site Implementation Scores 140
3. Factor Analysis of Variables: Nine Global Variables (Factors) 149
4. Replicability of Results with Previous Analysis 171
5. Findings Regarding Observed Differences Between Grade Levels and Activities within Sponsor Classrooms 173

C. Mean Frequency of Variable Occurrence Follow Through and Non-Follow Through 174

1. Method 175
2. Results and Discussion 175

D. Correlation of Process Variables with Child Behavior Outcomes 188

E. Summary 192

VIII RELATIONSHIP OF CLASSROOM PROCESS AND CHILD TEST OUTCOMES 195

A. Introduction 195

B. Discussion of Unit Analysis and Sample 196

  1. Unit of Analysis 196
  2. Sample 197

C. Description of Outcome Measures 199

  1. Cognitive Measures 202
  2. Noncognitive Measures 206

D. Description of the Covariables 207

E. Methodology 211

F. ANCOVA Model 212

  1. Regression Statistics 212
  2. Sponsor Effects 214

G. CO Model 221

  1. Choice of CO Variables 222
  2. Regression Statistics 225
  3. Partial Correlations 228
  4. Discussion of High Positive Correlations Between CO Variables and Achievement Test Scores 237
  5. Discussion of High Negative Correlations Between CO Variables and Achievement Test Scores 241
  6. Individual Attention Analysis 244
  7. Summary 246

H. Exploratory Analysis 247

  1. Procedure and Results 247
  2. Conclusions 256

IX SUMMARY AND CONCLUSIONS 259

A. Introduction 259

B. Implementation 260

C. Classroom Process and Child Outcomes 262

  1. Classroom Processes as Related to Child Test Scores 262
  2. Classroom Process and Child Behavioral Outcomes 263

D. Exploratory Analysis of Sponsor Model Processes and Test Outcomes 264

E. Refinements of Observation Methodology 266
    1. Child-Focused Variables 266
    2. Analysis by Grade Level and Activity 267
    3. The Child as the Unit of Analysis 267
F. Policy Implications 268

REFERENCES 271

APPENDICES . . . .

A CLASSROOM OBSERVATION VARIABLE SPECIFICATION 277

B FOLLOW THROUGH SPONSORS' RATINGS OF CLASSROOM OBSERVATION VARIABLES 311

C FACTOR ANALYSIS VARIABLE LIST (ADULT FOCUSED) 319

D TEACHER VARIABLE SPECIFICATION LIST 325

E STUDENT DEMOGRAPHIC DATA 331

F PARTIAL CORRELATIONS BETWEEN TEST SCORES AND INDIVIDUAL ATTENTION 335

G CLASSROOM OBSERVER COMMENTS 339

H OPERATIONAL DEFINITIONS OF CCL AND FMO CODES 345

I CLASSROOM OBSERVATION INSTRUMENT 373

J FINDINGS REGARDING DIFFERENCES BY GRADE LEVELS AND ACTIVITIES WITHIN SPONSOR 401

K REPORTS OF STAFF TRAINING BY SPONSORS 433

L MEANS AND STANDARD DEVIATIONS OF FOLLOW THROUGH PROGRAM SPONSORS AND NON-FOLLOW THROUGH PROGRAMS ON CLASSROOM OBSERVATION VARIABLES 449

M CHANGES IN CLASSROOM OBSERVATION VARIABLES FROM 1970 TO 1971-72 479

N RELIABILITY AND UNIFORMITY OF OBSERVER PROCEDURES 493

O ASSESSMENT OF CCL VARIABILITY BETWEEN ADULT-FOCUSED AND CHILD-FOCUSED OBSERVATIONS 509

P REGRESSION STATISTICS FOR TWO MODELS BY TEST 523

Q INVESTIGATION OF THE EQUALITY OF SLOPES AND RESIDUALS FOR SPONSORS WITHIN GRADE STREAM 527

R THE USE OF CATANOVA STATISTICS IN THIS REPORT 539

S UNADJUSTED MEANS AND STANDARD DEVIATIONS ON DEPENDENT VARIABLES 543

ILLUSTRATIONS

VI-1 Enrollment (OSF 10) 61

VI-2 Reciprocal of Adult to Child Ratio (OSF 15) 62

VI-3 Arithmetic, Numbers, Math (CCL 4) 63

VI-4 Reading, Alphabet, Language Development (CCL 5) 64

VI-5 Teacher with One Child in Any Activity 65

VI-6 Teacher with Small Group in Any Activity (CCL 41) 66

VI-7 Teacher with Large Group in Any Activity 67

VII-1 Comparison by Sponsors of Factor 1, Stimulus-Response-Feedback 153

VII-2 Comparison by Sponsors of Factor 2, Small Group Activities 155

VII-3 Comparison by Sponsors of Factor 3, Range of Emotion in Social Behavior 158

VII-4 Comparison by Sponsors of Factor 4, Child Initiative 159

VII-5 Comparison by Sponsors of Factor 5, Formal Instruction 161

VII-6 Comparison by Sponsors of Factor 6, Divergent Questioning 164

VII-7 Comparison by Sponsors of Factor 7, Individualized Work Setting 166

VII-8 Comparison by Sponsors of Factor 8, Academic Equipment and Materials 168

VII-9 Comparison by Sponsors of Factor 9, Children not Engaged with Adults 170

VII-10 Observed Differences in Adult Attention to Children During Reading and Math Activities for Follow Through and Non-Follow Through Children 176

VII-11 Observed Differences in Child Independence Between Follow Through and Non-Follow Through Children 179

VII-12 Observed Differences in the Use of Equipment and Materials in Academic Instruction for Follow Through and Non-Follow Through Children 180

VII-13 Comparison of Follow Through and Non-Follow Through Child Initiative and Responsiveness 186

TABLES

IV-1 Site Selection for Classroom Observation 1971-72 28

IV-2 Classroom Sample for Classroom Observation 1971-72 29

V-1 Frequency of Sentences Defining Variable FMO-81: Adult Instructing Children 44

V-2 Twenty Most Frequent Unique Sentences in the Adult Focus Data 46

V-3 Twenty Most Frequent Unique Sentences in the Child Focus Data 47

VI-1 Comparison of Follow Through and Non-Follow Through Children on Demographic and Entering Characteristics for the Entering Grade by Site--Fall 1971 52

VI-2 Percentages of Responses on Teacher Questionnaire by Sponsor 55

VI-3 Number of CCL Variables Where Major Differences Were Found 59

VI-4 Percent Agreement Between Trainer/Observer (Paired Observers) in Recorded Classroom Observation Variables . . 73

VI-5 Percent Agreement Between Trainer/Observer (Paired Observers) in Recorded Classroom Observation Variables . . 73

VI-6 Percent Agreement Between Trainer/Observer (Paired Observers) in Recorded Classroom Observation Variables . . 74

VI-7 Percent Agreement of Observers with Trainer by Site 76

VI-8 Percent Agreement of Observers with Trainer by Site 77

VII-1 Grade Differences on Selected CCL Variables: Far West Laboratory 85

VII-2 Adult Feedback to Children: Far West Laboratory 87

VII-3 Grade Differences on Selected CCL Variables: U. Arizona 89

VII-4 Adult Feedback to Children: U. Arizona 91

VII-5 Grade Differences on Selected CCL Variables: Bank Street 94
VII-6 Adult Feedback to Children: Bank Street 96
VII-7 Grade Differences on Selected CCL Variables: U. Georgia 99
VII-8 Adult Feedback to Children: U. Georgia 101
VII-9 Grade Differences on Selected CCL Variables: U. Oregon 104
VII-10 Adult Feedback to Children: U. Oregon 105
VII-11 Grade Differences on Selected CCL Variables: U. Kansas 109
VII-12 Adult Feedback to Children: U. Kansas 110
VII-13 Grade Differences on Selected CCL Variables: High/Scope 113
VII-14 Adult Feedback to Children: High/Scope 115
VII-15 Grade Differences on Selected CCL Variables: U. Florida 118
VII-16 Adult Feedback to Children: U. Florida 119
VII-17 Grade Differences on Selected CCL Variables: EDC 122
VII-18 Adult Feedback to Children: EDC 124
VII-19 Grade Differences on Selected CCL Variables: U. Pittsburgh 127
VII-20 Adult Feedback to Children: U. Pittsburgh 129
VII-21 Grade Differences on Selected CCL Variables: ILM 132
VII-22 Adult Feedback to Children: ILM 134
VII-23 Grade Differences on Selected CCL Variables: Southwest Lab 137
VII-24 Adult Feedback to Children: Southwest Lab 139
VII-25 Site Implementation Scores on Selected Variables 142
VII-26 Group Implementation Scores 148
VII-27 Means and Standard Deviations of Factor Scores, by Sponsor 151

VII-28 Factor Loadings of Selected Variables for Factor 1, Stimulus-Response-Feedback 152

VII-29 Factor Loadings of Selected Variables for Factor 2, Small Group Activities 154

VII-30 Factor Loadings of Selected Variables for Factor 3, Range of Emotion in Social Behavior 156

VII-31 Factor Loadings of Selected Variables for Factor 4, Child Initiative 160

VII-32 Factor Loadings of Selected Variables for Factor 5, Formal Instruction 162

VII-33 Factor Loadings of Selected Variables for Factor 6, Divergent Questioning 163

VII-34 Factor Loadings of Selected Variables for Factor 7, Individualized Work Setting 165

VII-35 Factor Loadings of Selected Variables in Factor 8, Academic Equipment and Materials 167

VII-36 Factor Loadings of Selected Variables in Factor 9, Children Not Engaged with Adults 169

VII-37 Identical, Overlapping or Combined Variables 1970-71 and 1971-72 172

VII-38 Observed Differences in the Occurrence of Activities in Follow Through and Non-Follow Through Classrooms--Spring 1972 177

VII-39 Adult Focus of Communication 181

VII-40 Instructional Processes 182

VII-41 Observed Differences Between Follow Through and Non-Follow Through Children on Selected Child Behavior Variables 183

VII-42 Follow Through and Non-Follow Through Feedback Systems . 184

VII-43 Follow Through and Non-Follow Through Affective Behavior. 187

VII-44 Child-Initiated Interaction with Adult (FMO-2) 189

VII-45 Child Questioning (FMO-18) 190

VII-46 Child Responsiveness (FMO-19) 190

VII-47 Child Response to Divergent Questions (FMO-21) 191
VII-48 Child Independence in Academic Activities (FMO-34) . . . 191
VII-49 Children's Cooperation with Each Other (FMO-58) 192
VIII-1 Number of Children Included in the Analyses by Sponsor and Grade Level/Stream 198
VIII-2 Percent of Eligible Children 199
VIII-3 Grade Level/Streams, Sponsors, and Dependent Variable Combinations 201
VIII-4 Subjects Taken as Dependent Variables from the MAT and WRAT by Dependent Variable and Grade 203
VIII-5 History Pattern of Children in CO Analysis 1970-71 . . . 210
VIII-6 Regression Statistics for ANCOVA Model by Test 213
VIII-7 Sponsors' Adjusted Effects on Tests for Kindergarten . . 215
VIII-8 Sponsors' Adjusted Effects on Tests for First Grade E/F 216
VIII-9 Sponsors' Adjusted Effects on Tests for First Grade/EK 217
VIII-10 Sponsors' Adjusted Effects on Tests for Second Grade/EF 218
VIII-11 Sponsors' Adjusted Effects on Tests for Second Grade/EK 219
VIII-12 Sponsors' Adjusted Effects on Tests for Third Grade/EF 220
VIII-13 FMO Variables Included in the Analysis 224
VIII-14 Regression Statistics for CO Model by Test 226
VIII-15 Partial Correlation of Classroom Observation Variables with Test Scores for Kindergarten 229
VIII-16 Partial Correlation of Classroom Observation Variables with Test Scores for First Grade/EF 230
VIII-17 Partial Correlation of Classroom Observation Variables with Test Scores for First Grade/EK 231
VIII-18 Partial Correlation of Classroom Observation Variables with Test Scores for Second Grade/EF. 232

VIII-19 Partial Correlation of Classroom Observation Variables with Test Scores for Third Grade/EF 233
VIII-20 Highest Positive Correlations Between Classroom Observation Variables and Achievement Test Scores 234
VIII-21 Lowest Negative Correlations Between Classroom Observation Variables and Achievement Test Scores 235
VIII-22 Trend of Correlations Between Some Classroom Observation Variables and Achievement Test Scores 236
VIII-23 Highest and Lowest Correlations Between Individual Attention Variables and Achievement Test Scores 245
VIII-24 Overall Outcome Contrasts Between Sponsor Group A and Sponsor Group B 250
VIII-25 Contrasts Between Sponsor Groups A and B on Individual Outcome Measures 251
VIII-26 Overall Outcome Contrast Between Sponsor Group B and Sponsor Group C 254
VIII-27 Contrasts Between Sponsor Groups B and C on Individual Outcome Measures 255
G-1 General Conclusions of Observers by Site 341
G-2 Number of Observers Reporting Coding Difficulties by Sponsor, Code, and Reason 342
G-3 Summary of Selected Comments from the Weekly Roster Lists 343
J-1 Percentage of FMOs in Activity Categories by Focus, Episode, Sponsor and Grade 405
J-2 FMOs Where Activity Category Changed by Sponsor 406
J-3 Specification of Partition of Range for FMO Variables . . 407
J-4 Number of Variables Where Major Differences Were Found Among Grade Levels on FMO Variables 408
J-5 FMO Variables that Discriminated Activity Categories on at least 75 Percent of the Sponsor/Grade Level Combinations 414
J-6 Means on Frequency of Academic Events (FMO-116) by Sponsor, Grade and Activity Category 415

J-7a Range of Sponsor Mean Frequencies for Kindergarten Grade Stream: Global and for Each Grade Level for Activity Category 2 418

J-7b Range of Sponsor Mean Frequencies for Entering First Grade Stream: Global and for Each Grade Level for Activity Category 2 419

J-8 Sponsors Who Shifted Four or More Ranks from the Global Analysis to the Detailed Analysis 421

J-9 Means During Reading, Alphabet, Language Development (CCL-5) 422

N-1 Means and Standard Deviations of the Number of Frames per FMO per Observer or Selected Sponsors (Child Focused) 496

N-2 Means and Standard Deviations of the Number of Frames per FMO per Observer or Selected Sponsors (Adult-Focused) 497

N-3 Mean Number of COPs per Day by Observer within Sponsor . . 498

N-4 Summary of Disruptions in Classroom Activities and Classroom Observations Due to Outside Events 499

O-1 Specification of Partitions for CCL Variables 512

O-2 Number of COPs by Sponsor, Grade, and Focus 513

O-3 CCL Variables Where There is a Major Difference in Distribution Between Adult Focus and Child Focus by Sponsor and Grade Level 514

O-4 Changes Observed Between Foci on Selected CCL Variables by Sponsor and Grade 515

Q-1 Statistics for Testing Whether Sites are Equal Except for Intercept 530

Q-2 ANCOVA Model Parameterization for K and EF Grade Streams . 531

Q-3 Comparison of Sponsors 532

Q-4 Results of Multivariate Hypotheses Test Based on ANCOVA Model by Sponsor and Grade Stream 535

S-1 Unadjusted Means and Standard Deviations on Dependent Variables by Grade Level/Stream and Sponsor Entering Grade: Kindergarten 545

S-2 Unadjusted Means and Standard Deviations on Dependent Variables by Grade Level/Stream and Sponsor Entering Grade: First 546

S-3 Means and Standard Deviations on Baseline WRAT by Grade Level/Stream and Sponsor 547

ACKNOWLEDGMENTS

The report of the Follow Through Classroom Observation evaluation reflects the dedication, commitment, and effort of many people both within and outside of Stanford Research Institute.

This evaluation was conducted within SRI's Urban and Social Systems Division, which is headed by Harvey L. Dixon, Executive Director, with Richard A. Marciano, Assistant Director of Educational Research, as the project director and Dr. Jane Stallings as the manager of the Follow Through classroom observation.

The cooperation and support of the staff of the U.S. Office of Education deserves special recognition. We deeply appreciate the encouragement and guidance provided by Dr. Garry McDaniels, Acting Chief, Research and Evaluation, Follow Through Branch.

We gratefully acknowledge the invaluable assistance of Dr. Eleanor Maccoby of Stanford University and Dr. Ned Flanders of Far West Laboratory, who are consultants to the study. Over the several years of the developmental and analytic phases of the observation study, they have given unstintingly of their time and effort.

We want to express our heartfelt appreciation to our consultants, Dr. Richard M. Brandt, University of Virginia; Dr. William W. Cooley, Center for Advanced Study in the Behavioral Sciences; Dr. Donald M. Medley, University of Virginia; Dr. Daniel M. Ogilvie, Rutgers University; and Dr. Barak Rosenshine, University of Illinois at Urbana, for their incisive review of our analytic approaches and their valuable suggestions for this study.

Special recognition is due to Dr. Lois-ellin Datta of the National Institute of Education for her efforts and contributions during the years of the study and her commitment to its success.

Marian Stearns and Mary Wilcox deserve special mention for their contributions to the interpretation of the data. They brought to the task of interpretation a background of knowledge in the areas of child development and early childhood education that was invaluable.

To Leland Anderson, who both undertook and fulfilled the gargantuan task of coordinating the production of this report, our heartfelt gratitude. Only his diligence and perseverance in the face of overwhelming details and vexing adversities made the report possible. The continuing effort of the typing staff, Cheryl Dowell and Wanda Fedurek, is also acknowledged.

Special recognition and thanks to the SRI observation training staff: Dorothy Booth, Jay Cross, Phil Giesen, Georgia Gillis, Peggy Needels, and Kathryn Preecs. Due to their carefully developed training procedures and their keen awareness of learning strategies, they have provided us with highly trained classroom observers in all parts of the nation.

The planning and guidance of the statisticians from the SRI Mathematical Statistics Groups, David Kaskowitz and Charles Norwood is acknowledged with special appreciation for the careful review of the report by Dr. Richard Singleton, SRI Staff Scientist. Mike Rogson, Assistant Director of Mathematical Statistics, and the programmers, Art Atkinson-Hager and Roy Sutton are acknowledged for their efforts in preparing our data. Special recognition is afforded for the creative programming contribution of J. Philip Baker over the past three years.

To the sponsors and their staffs (the heroes of this Follow Through effort), whose counsel and assistance was invaluable, we express our deepest gratitude.

Finally, we offer our heartfelt thanks especially to the many people--school administrators, teachers, pupils, parents--who so graciously aided us in our pursuit of better understanding of classroom processes.

LIST OF TERMS

K = Kindergarten
1/ef = First Grade/entering school at the first grade level
1/ek = First Grade/entering school at the Kindergarten level
2/ef = Second Grade/entering school at the first grade level
2/ek = Second Grade/entering school at the Kindergarten level
3/ef = Third Grade/entering school at the first grade level

FT = Follow Through
NFT = Non-Follow Through (Comparisons)
COI = Classroom Observation Instrument
COP = Classroom Observation Procedure
OSF = Observation Summary Form/(Variables)
CCL = Classroom Check List/(Variables)
FMO = Five-Minute Observation/(Variables)

^{a} = Adult-focused variable (Example: CCL-14^a)
^{c} = Child-focused variable (Example: CCL-14^c)

Abbreviations Used on Tables	Sponsor	Abbreviations Used in Text
FW	Far West Laboratory for Educational Research and Development	Far West Lab
UA	University of Arizona	U. Arizona
BC	Bank Street College of Education	Bank Street
UG	University of Georgia	U. Georgia
UO	University of Oregon	U. Oregon
UK	University of Kansas	U. Kansas
HS	High/Scope Educational Research Foundation	High/Scope
UF	University of Florida	U. Florida
ED	Education Development Center	EDC
UP	University of Pittsburgh	U. Pittsburgh
IL	Interdependent Learning Model	ILM
SE	Southwest Educational Development Laboratory	Southwest Lab

I INTRODUCTION

Despite the national commitment to equality of educational opportunity and the massive efforts to improve educational outcomes--most particularly for economically disadvantaged children--very little systematic information is available regarding those elements in the classroom that significantly affect child behavior and achievement. Much of what goes on in the classroom--for example, the extent and nature of pupil-teacher interactions, the emphasis of specific program elements and approaches, the effects of teacher attitudes and methods--is largely based on intuition or best guesses of what seems to work, rather than based on the results of systematic analyses.* The Follow Through Planned Variation experiment, and specifically the Classroom Observation study, is an important addition to the ongoing effort in the research community, to obtain empirical evidence that may increase the effectiveness of the teaching-learning paradigm.

This report describes the third year (1971-1972) of the National Follow Through classroom observation study and summarizes its findings. The two earlier SRI reports of findings for the years 1969-1970 and 1970-1971 were primarily concerned with seeing whether planned variation existed, i.e., studying the extent to which the sponsors' models were implemented and delineating the differences in program methods, interactions, and approaches among the selected Follow Through sponsors. In addition to the questions regarding implementation, the present report explores the relationship among elements in the classroom process and child behavioral and achievement outcomes.

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*Rosenshine, among others, has pointed to the paucity of research in this critically important area in a variety of publications and research reviews. See for example: B. Rosenshine, "New Directions for Research on Teaching," in How Teachers Make a Difference, Stock No. 1780-0813, US:GPO., 1971; B. Rosenshine and N. Furst, "The Study of Teaching in Natural Settings Using Direct Observation," mimeograph, undated; B. Rosenshine, "Translating Research into Action," Educational Leadership, 29:7, April 1972, pp. 594-597.

The report is designed with these four aims in mind:

- To evaluate programs regarding implementation at one site for each of twelve sponsors.
- To investigate the relationships between classroom processes and pupil outcomes, with emphasis upon improved understanding of classroom learning environments.
- To identify classroom processes, as distinguished from sponsor models, which can be related to pupil outcomes and which have elements in common with various sponsors' models.
- To further development and refine classroom observation methodology so as to extend its usefulness with regard to Follow Through national evaluation policy issues.

The remainder of this chapter presents a brief account of the background of Project Follow Through, reviews the rationale for development of the Classroom Observation Instrument, describes the characteristics of the sponsors' educational models that are evaluated, and offers a brief summary of the content of the chapters that consititute the remainder of the report.

Some cautions* are in order. The sample for this study was limited to one site per sponsor. The report must therefore be viewed as an in-depth case study of teacher and students at three grade levels at one site for each sponsor. Generalizations cannot be made to other sponsor sites. In addition, this phase of the study should be viewed as essentially exploratory and heuristic in nature, with the expectation that next year's findings may provide more definitive results.

A. Background

As Egbert (1973) states, "Follow Through was a programmatic and legislative afterthought." An early evaluation by Wolff and Stein (1966) had indicated that whatever gains the children had made in the first summer (1965) of Project Head Start were not apparent in the achievement test results at the end of Kindergarten. These findings confirmed the view of early education and child development specialists that a short-term intervention, such as a summer program, was of insufficient duration to produce lasting gains. In addition to the time factor, there was another issue: Whether the early grades of public school were sufficiently articulated with the Head Start goals, curricula, and objectives to allow these children to maintain or accelerate their preschool achievement. These issues prompted a call for a service program incorporating Head Start goals and approaches that would follow the children into Kindergarten and the early grades. The result was Follow Through, which was conceived as a school program that would supplement and perpetuate the gains that children achieved in Head Start (Egbert, 1973).

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* Cautions regarding the data base and analysis are specified in Chapters V and VI and also to some extent in Chapters VII and VIII.

The legislative authority for Follow Through was included in the 1967 amendments* to the Economic Opportunity Act of 1965. The Congressional intent was to establish a service program; however, severe budget limitations resulted in an administrative decision to establish Follow Through as a social experiment in order to determine whether a long-term, planned intervention could enhance the educational growth of economically disadvantaged children. Although authorized by the Economic Opportunity Act, actual program administration was delegated by OEO to the Division of Compensatory Education in the U.S. Office of Education (Egbert, 1973). Pilot programs went into effect initially during the academic year 1967-1968. Subsequently, Follow Through programs were established in 170 school districts throughout the United States.

As a quasi-experimental program, Follow Through was set up in what was called a "planned variation" design. The originators of the planned variation programs were individuals or groups--generally educators or psychologists--who had developed programs based on different educational theories and had tested them primarily in university research centers. A number of these educational researchers, later called Follow Through program "sponsors," were invited by the government to submit plans for establishing their various programs in public schools in order to test their program's ability to improve the educational achievement of economically disadvantaged children. In spite of many obstacles, the sponsors had the vision and perseverance to try to implement their ideas in many divergent school settings across the country. They not only translated their theories into curricula and materials, and formulated preservice and in-service training for teachers and aides, but they also had the challenging task of winning the confidence of each community's educational leaders, school administrators, teachers, and parents.

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*Title II, Section 222(b).

School districts wishing to participate in the Follow Through program chose one of the 22 available sponsors. Working jointly with its sponsor, each participating school district has attempted to implement the selected instructional model.

B. Rationale and Development of the COI

The well-known Coleman report (1966), and its extension by Mosteller and Moynihan (1972), have dealt with the issue of what school factors account for the variability in children's school achievement--with disappointing results. These input-output analyses used broad indices, such as per-pupil expenditures, the adequacy of physical plant and facilities, and the students' socioeconomic status, in the effort to determine the factors that influence school success. No attempt was made in these studies to look closely at the classroom in order to determine the effect of classroom events on pupil growth.

Other studies (as reported by Hawkridge, 1968, and Stearns, 1971), evaluating compensatory education programs, have depended primarily upon achievement tests to evaluate child progress. Results of such studies are limited to conclusions regarding a child's ability to read a standard vocabulary, to compute standard mathematical problems, and to handle general cognitive processing.

Many of the Follow Through sponsors' objectives for children cannot be evaluated by standard achievement tests. Unfortunately, innovations in evaluation of many behavioral dimensions have not proceeded at the same rate as have educational innovations. For example, such sponsor-specified child development skills as the ability to make choices, to inquire, to work independently or cooperatively, to generalize, and to solve problems have not been successfully measured to date. Such skills are difficult to measure and they are not likely to be amenable to paper-pencil tests. However, some of them are amenable to systematic observation techniques to the extent that operational definitions can be developed to describe the characteristics that identify these behaviors.

It was evident that an observation instrument of process variables was needed because:

- Observation is the only means to measure some phenomena, particularly certain behavioral phenomena.
- Observation is a way to obtain an objective description of treatments.

- Observation is a basis for judging the extent to which the intended treatment is actually present.
- Observation can be used as an alternative method for assessing variables.

Some of the earlier observation work had been done by Daniel Prescott (1957). He focused on observation and anecdotal writing as a major means of obtaining information on child behavior. Although his approach was systematic, Prescott did not devise an observation instrument; instead, he organized a child-development teacher-training program that included skills in observation, hypothesis developing, and hypothesis testing.

Systematic attempts to quantify teacher and child behavior in classroom situations have evolved largely since World War II. A variety of observation instruments have been developed; some instruments classify only teachers' behaviors; some classify children's behaviors; and some classify both. Some instruments collect only verbal behavior; some, nonverbal behavior; and others collect both. Simon and Boyer (1970) report that over 100 observation instruments are currently available. A historical review of the observation work has been provided by Medley and Mitzel (1963).

After examining existing observational instruments, and concluding that they were too limited in scope (that is, most of them record behaviors and events considered important in a single theory rather than several differing theories, as necessary for Follow Through), the SRI staff decided that it was necessary to develop a comprehensive observation instrument. With the help of sponsor representatives and others, such an instrument emerged in 1970. The development of the Five Minute Observation (FMO) component of the COI was strongly influenced by N. Flanders Interaction System (1969). Six of Flanders' codes were modified and used: praising, asks questions, lectures, gives directions, criticizes, and responds. In addition, numerous other codes were developed to collect data regarding affect, movement, and subject content.

In order to be able to place a specific interaction within a context, a "snapshot" method was developed to record the placement of each classroom adult and child within a given activity. This "snapshot" records each adult and child in a specific activity, and shows whether the participants are working alone or in groups. Materials being used are also indicated. This snapshot is taken before each five-minute observation. In this way, a rather complete picture of the classroom emerges, revealing interactions

PS 006987

within a specified contextual frame. Thus, the SRI Classroom Observation Instrument* (COI), as modified since 1970, was tailored to record the wider range of interactions and environments represented in the Follow Through programs.

The purpose of the SRI Classroom Observation Instrument (COI) is to record what is occurring in the classroom as a way to determine whether there are planned educational variations in the Follow Through programs. Such COI records of occurrences in Follow Through classrooms can be compared with sponsor specifications regarding the expected classroom environment, and specifications for teacher, aide, and child behaviors of his model. If the the observation report of classrooms concurs with sponsor specifications, the sponsor is regarded as having implemented his model. In this way, it is possible to estimate the extent to which a model is implemented. Implementation is defined as the ability to demonstrate the sponsor's theory in the classroom.

C. Use of the Classroom Observation Instrument

Observational studies conducted by SRI in 1970-71 and 1971-72 focused on implementation of sponsors' models. This report also deals with the implementation issue, and, further, it makes an attempt to discover which instructional elements in the models can be shown to influence child learning. For example, an answer is sought to such a question as: Are the classroom processes that the sponsors have hypothesized as affecting pupil outcomes in academic skills, self confidence, or problem solving actually related to outcome as predicted?

A study addressed to a similar question was conducted on Follow Through classrooms of seven sponsors during the 1970-71 school year by Robert Soar (1971). Soar employed four observation instruments (the Florida Affective Categories System, Teacher Practices Observation Record, Florida Taxonomy of Cognitive Behavior, and Reciprocal Category System), and the SRI Follow Through Evaluation test batteries. Factor analyses were performed on each of the observation instruments, yielding factors such as "pupil free choice versus teacher structured activity;" factor analyses were also performed on regressed gain scores on the tests, yielding a "simple concrete skill and complex abstract" factor. The classroom process factor scores were used in multiple range tests to determine differences among sponsor models. Then mean test factor scores for each classroom (eight classrooms per sponsor) were correlated with factor scores from the observational data. Soar's principal overall finding was: "The dimensions which most strongly discriminate programs are not ones which related most strongly with pupil growth" (Soar, p. iv) and, the dimensions which are related to pupil growth did not discriminate strongly among programs.

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* More detailed descriptions of the development of the SRI COI are presented in SRI Follow Through reports and their Appendices, from 1969 to 1972. See References for specific SRI titles and dates.

The study set forth here, employing SRI's Classroom Observation Instrument (COI), differs from Soar's study in several ways. A principal difference is that Soar concentrated upon linking process to outcome, whereas the SRI observation instrument was designed especially to assess the implementation of all of the sponsors' models included in the study. Implementation was measured by selecting variables regarded by the sponsors as being the most representative of their models and then assessing the extent to which they were present in the classrooms. Great effort was made to ensure that each sponsor was fairly represented.

The observation instrument was designed to describe the model programs of the 12 Follow Through sponsors* (out of the total of 22) listed below. The twelve sponsors were selected on the basis that they had developed Head Start Planned Variation programs or that they were implementing their programs in three or more sites.

Sponsor	Abbreviation
Far West Laboratory for Educational Research and Development Responsive Educational Program San Francisco, California Glen Nimnicht Dennis Thoms	FW
University of Arizona Tucson Early Education Model--(TEEM) Tucson, Arizona Joseph M. Fillerup	UA

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* Description of sponsors can be found in Chapter VII.

Sponsor	Abbreviation
Bank Street College of Education Bank Street Approach New York, New York Elizabeth C. Gilkeson	BC
University of Georgia Mathemagenic Activities Program Athens, Georgia C. D. Smock	UG
University of Oregon Engelmann-Becker Model Eugene, Oregon Siegfried Engelmann Wesley C. Becker	UO
University of Kansas Behavior Analysis Approach Lawrence, Kansas Don Bushell, Jr.	UK
High/Scope Educational Research Foundation Cognitively Oriented Curriculum Model Ypsilanti, Michigan David P. Weikart	HS
University of Florida Florida Parent Education Model Gainesville, Florida Ira J. Gordon	UF
Education Development Center EDC Open Education Program Newton, Massachusetts George E. Hein	ED
University of Pittsburgh Learning Research & Development Center Individualized Early Learning Program Pittsburgh, Pennsylvania Lauren Resnick	UP

Sponsor	Abbreviation
New York University (original sponsor) Interdependent Learning Model (ILM)* New York, New York Donald Wolff Jack Victor	IL
Southwest Educational Development Laboratory Language Development (Bilingual) Education Approach Austin, Texas Don H. Williams	SE

The salient features of the models and the differences among them, other than the strategic differences in implementation, have been examined by several researchers, among them Weikart (1973) and Gordon (1972) (both sponsors themselves), Bissell (1970), Weber (1970), and Maccoby and Zellner (1970).

At least two books have been published [Weber (1970) and Maccoby and Zellner (1970)] in which the authors have discussed differences in the underlying philosophies of some Follow Through sponsors. Maccoby and Zellner have developed a typology, based on discussions with the sponsors, as well as on observation of the instructional programs, which is summarized as follows (Maccoby and Zellner, 1970, p. 25):

(1) Programs oriented toward behavior modification--Performance on intellectual tasks is thought of as a class of behavior subject to the same laws that govern other kinds of behavior. Education is, or should be, a process of reinforcing children for the desired behavior.

(2) Programs oriented toward cognitive growth--Performance on intellectual tasks is thought of as reflecting the level of development of mental structures and operations. Education is, or should be, a process of facilitating the normal stagewise growth of these processes.

(3) Program oriented toward self-actualization--Performance on intellectual tasks reflects whether a child has chosen to master the tested-for contents in pursuit

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*No longer affiliated with New York University.

> of his own goals. Education is, or should be, a process of stimulating the child's intellectual curiosity, providing him with a range of experiences and materials appropriate to his existing skills, so that he can learn to become competent in his own physical and social environment.

Placing sponsors within these groups is nearly impossible. Only those sponsors using behavior modification principles are easily classified. Most sponsors have changed their approaches and modified goals as they have tried to implement programs in diverse communities.[*] Sponsors who emphasized self-actualizing processes four years ago have in many instances moved toward more specific procedures which lead toward cognitive growth through planned experiences.

Generally all sponsors are in agreement on the broad range of Follow Through goals for children in the early grades; they differ radically about which goals follow naturally from achievement of the primary goals. For example, the U. of Oregon (UO) emphasis is on academic achievement in the belief that competence in this area builds confidence and self-esteem; whereas the U. of Arizona (UA) emphasis is on encouragement of curiosity and the development of task persistence and a concept of self-worth. In the UA program, materials reflecting the community are used to develop the child's pride in his background, as one way in which the child will be motivated to learn basic academic skills. The classroom observation procedures were designed to capture these differences in classroom environment and structure. Further, although all sponsors expect children to be motivated eventually to operate in an educational setting in the absence of material rewards (or social reinforcement contingent on every response), the sponsors differ radically in their classroom methods for motivating learning. The COI includes categories for detecting these differences in emphasis.

Admittedly some models are better reflected in the COI data than others. Structured or predictable sequences of interactions can be recorded and used as variables related to teaching processes. Processes of models that rely upon the intuition of teachers are not amenable to such sequential analysis. The U. Florida (UF) model, which is distinct in many ways from the other models, is primarily implemented through a paraprofessional parent (i.e., the "parent educator" who is involved in the classroom as a teacher aide and in the home as an instructor for the mother), and therefore is more difficult to evaluate on most of these dimensions. Since the classroom is not the primary location of implementation, the UF model cannot be expected to be as well characterized as other models by the measurements in the classroom. Since Southwest Lab puts concentrated emphasis on language and focuses its curriculum on bilingual instruction, it also might not be as well characterized on the above dimension as the others.

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[*] For an account of this issue, see David P. Weikart and B. A. Banet, "Planned Variation: From the Perspective of a Model Sponsor," paper prepared for a working conference sponsored by the Brookings Institution Panel on Social Experimentation, Washington, D.C., April 1973.

D. Organization of the Report

The data gathering procedures are described in Chapters II-IV for the 1972 observation of Follow Through and comparison classrooms. The analytic methods employed are described in Chapters V-VIII, and the study findings are summarized in Chapter IX. Appendices A-S present supporting material.

1. Data Gathering

a. The Classroom Observation Instrument (COI)

Chapter II describes the structure and function of the Classroom Observation Instrument (COI). The COI yields three classes of variables: those which describe the physical environment and are recorded on the Observation Summary Form (OSF); the Classroom Check List (CCL) variables, which show the distribution of adults, children and materials among activities; and the Five-Minute Observation (FMO) variables, which record the interactions observed in the classroom. The interaction categories and the rules governing their use can be viewed as constituting a language. This concept is discussed briefly toward the end of Chapter II.

b. Selection and Training of Classroom Observers

Chapter III describes the criteria for the selection of classroom observers and provides a detailed description of the observer training processes--with particular emphasis on the methods used to attain observer reliability.

c. The Sample and Procedures for the Classroom Observation

Chapter IV presents the sampling criteria used to select the specific classrooms, focus children, and focus adults. Reliability checks made in the field by training staff during each observer's observation period are described.

2. Methods of Analysis

The steps in the analysis were initially designed to follow a logical sequence wherein results from the initial phases could be used as foundations for subsequent analyses. The complexity of the findings in earlier stages made the accomplishment of this plan difficult and Chapters VI through VIII present several separate analyses. Not all the connections that would be made among such analyses are carried through. The general sequence is discussed briefly here to provide a rough guide to Chapters V-VIII.

a. Description of the Variables

Chapter V first describes how the variables are created from the coded information on the COI. In general, the variables were designed to capture the classroom processes considered educationally important by one or more sponsors or to capture a classroom process linked by educational theorists to children's performance on tests of achievement or attitudes. Chapter V next describes some attempts to analyze the nature of the variables on which the rest of the report is based.

b. Preliminary Analysis: Investigation of Comparability

In Chapter VI, the following questions were addressed: (1) How comparable were classes within sponsor and grade? (2) How comparable were grade levels within sponsors? (3) How comparable were observations from one time point to another within sponsors? (4) How comparable across sponsors were teachers' experience, satisfaction with the model, and training? (5) How adequate was the match between the Follow Through and Non-Follow Through samples for each site? (6) How reliable were observers?

c. Classroom Processes

Chapter VII begins with a discussion of model implementation. To examine the question of implementation, specific variables were chosen for each sponsor to best reflect his model. Mean frequencies of desired variables are compared with the mean frequencies on the same variables observed in Non-Follow Through classrooms. To illustrate implementation, an attempt is made to describe the day of a child in each model at different grade levels. Comparisons are made between data summed for each site and grade level.

To examine the question of variation among sponsors, factor scores using 65 variables were computed for each sponsor and for Non-Follow Through comparison classrooms These contrasts are presented in bar graph figures. Overall Follow Through and Non-Follow Through are also compared on selected variables.

In the last section of Chapter VII an exploratory investigation is made to examine the relationship between classroom processes and child behavioral outcomes.

d. Relating the Classroom Process to Child Test Outcomes

Chapter VIII explores several ways of relating classroom processes to child test outcomes. First, the outcome tests (or dependent variables employed) and the covariables employed are described. Then three different sets of independent variables are employed to answer the following questions:

- How much of the child's test outcomes can be predicted, at least in part, by the entering characteristics (covariables)?
- Which process variables, by themselves, relate strongly to test outcomes? In what way does knowing the frequency with which certain processes occur in the child's classroom (regardless of sponsor) help us predict his performance on the tests?
- In what way does knowing which sponsored model the child is in help us to predict his performance on the tests?

3. Summary and Findings

Summary and Conclusions

Chapter IX summarizes the findings of this exploratory phase of the Follow Through classroom observation study.

II DESCRIPTION OF THE SRI CLASSROOM OBSERVATION INSTRUMENT (COI)

The purpose of this chapter is to describe the sections of the Classroom Observation Instrument (COI) used in the 1971-72 analysis of the Follow Through program, to explain the purpose of using each, and to describe their use by the observers. The COI is composed of two major sections: the observation summary form (OSF) on a cover page, for recording summary information about the classroom, and the Classroom Observation Procedure (COP), for recording more specific information about classroom structure and process (see Appendix I).

A. Observation Summary Form (OSF)

1. Classroom Summary Information

This section of the OSF is designed to record the number of teachers and aides routinely present in the classroom, the number of volunteers present on the observation day, the number of children present in the class on that day, the number of children enrolled in the class, and the length of the school day. The Classroom Summary Information is completed at the end of each day of observation (for Kindergarten, completion may be earlier).

A teacher is defined as the person ultimately responsible for the classroom. An aide is defined as an adult regularly in attendance in the classroom, paid through Follow Through funds. A volunteer is defined as any adult in the classroom other than a teacher or an aide. The information regarding the number of children enrolled and the number of children in attendance for each observation day is obtained from the teacher or aide. The enrolled children are the children officially registered in the class for a specific school year. The total class duration is defined as the period of time during which children participate in scheduled class activities, including snacks, lunch, and rest; or the period between the time when children are expected to arrive and the time of class dismissal.

2. Physical Environment Information

This section of the OSF is designed to record information about the physical condition and the space utilization of the classroom and the school. The observer records an assessment of the age and upkeep of the building, the noise level, the heating, the ventilation, and the lighting. The amount and condition of the playground equipment, and the schedule followed for playground supervision, are noted. Also recorded are the presence or absence of types of classroom displays: children's own art work, photographs of the children, pictures of various ethnic groups, information about community events, and so on.

Information regarding classroom organization and structure is noted by the observer, who records whether the classroom could be described as an open space, or a self-contained, or portable space. Using guidelines from the Observer's Manual, the observer judges whether there is adequate space for the participants.

The observer also records as many of the following classroom descriptors as are applicable: movable tables and chairs, stationary desks in rows assigned seating during part of the day, self-selected seating, teacher assignment of children to groups, and self-selected work groups. The observer is expected to consult the teacher at the end of the observation day if assignment or self-selection of seating and/or groups cannot be inferred.

B. Classroom Observation Procedure (COP)

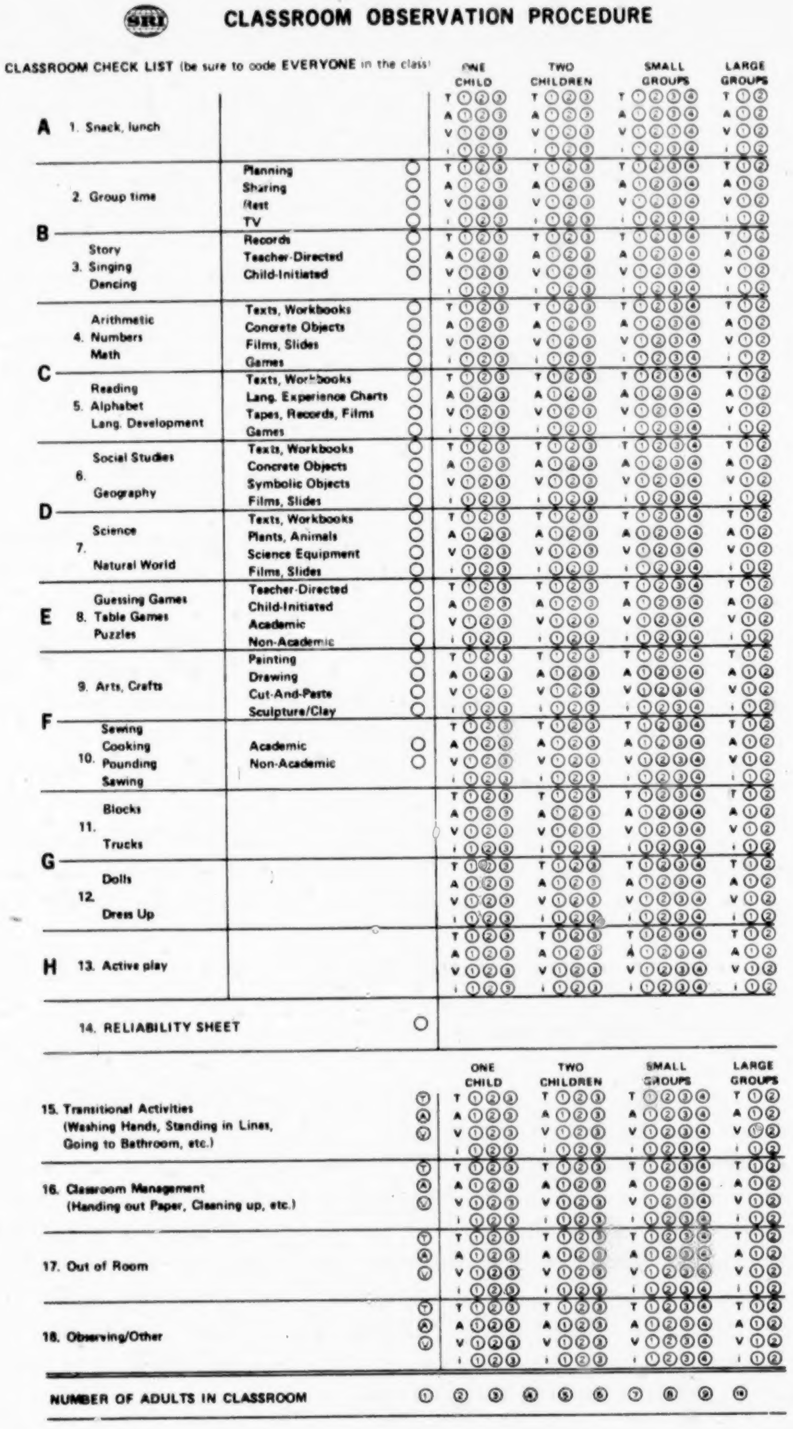
This second major section of the COI is designed to yield specific information about classroom structure and process. The COP includes:

- Classroom Check List (CCL),
- Five-Minute Observation Preamble, and
- Five-Minute Observation (FMO).

The observer completes the entire COP (CCL, Preamble, and FMO) approximately four times an hour, yielding 16 to 20 COPs per observation day.

1. The Classroom Check List (CCL)

The CCL is called the "snapshot" because it is designed to capture relatively static pictures of the distribution of adults and children participating in their classroom activities. The CCL has space



CLASSROOM OBSERVATION PROCEDURE

CLASSROOM CHECK LIST (be sure to code EVERYONE in the class)

				ONE CHILD	TWO CHILDREN	SMALL GROUPS	LARGE GROUPS
A	1. Snack, lunch			T ①②③	T ①②③	T ①②③④	T ①②
				A ①②③	A ①②③	A ①②③④	A ①②
				V ①②③	V ①②③	V ①②③④	V ①②
				I ①②③	I ①②③	I ①②③④	I ①②
B	2. Group time	Planning	○	T ①②③	T ①②③	T ①②③④	T ①②
		Sharing	○	A ①②③	A ①②③	A ①②③④	A ①②
		Rest	○	V ①②③	V ①②③	V ①②③④	V ①②
		TV	○	I ①②③	I ①②③	I ①②③④	I ①②
	3. Story Singing Dancing	Records	○	T ①②③	T ①②③	T ①②③④	T ①②
		Teacher-Directed	○	A ①②③	A ①②③	A ①②③④	A ①②
		Child-Initiated	○	V ①②③	V ①②③	V ①②③④	V ①②
				I ①②③	I ①②③	I ①②③④	I ①②
C	4. Arithmetic Numbers Math	Texts, Workbooks	○	T ①②③	T ①②③	T ①②③④	T ①②
		Concrete Objects	○	A ①②③	A ①②③	A ①②③④	A ①②
		Films, Slides	○	V ①②③	V ①②③	V ①②③④	V ①②
		Games	○	I ①②③	I ①②③	I ①②③④	I ①②
	5. Reading Alphabet Lang. Development	Texts, Workbooks	○	T ①②③	T ①②③	T ①②③④	T ①②
		Lang. Experience Charts	○	A ①②③	A ①②③	A ①②③④	A ①②
		Tapes, Records, Films	○	V ①②③	V ①②③	V ①②③④	V ①②
		Games	○	I ①②③	I ①②③	I ①②③④	I ①②
D	6. Social Studies Geography	Texts, Workbooks	○	T ①②③	T ①②③	T ①②③④	T ①②
		Concrete Objects	○	A ①②③	A ①②③	A ①②③④	A ①②
		Symbolic Objects	○	V ①②③	V ①②③	V ①②③④	V ①②
		Films, Slides	○	I ①②③	I ①②③	I ①②③④	I ①②
	7. Science Natural World	Texts, Workbooks	○	T ①②③	T ①②③	T ①②③④	T ①②
		Plants, Animals	○	A ①②③	A ①②③	A ①②③④	A ①②
		Science Equipment	○	V ①②③	V ①②③	V ①②③④	V ①②
		Films, Slides	○	I ①②③	I ①②③	I ①②③④	I ①②
E	8. Guessing Games Table Games Puzzles	Teacher-Directed	○	T ①②③	T ①②③	T ①②③④	T ①②
		Child-Initiated	○	A ①②③	A ①②③	A ①②③④	A ①②
		Academic	○	V ①②③	V ①②③	V ①②③④	V ①②
		Non-Academic	○	I ①②③	I ①②③	I ①②③④	I ①②
F	9. Arts, Crafts	Painting	○	T ①②③	T ①②③	T ①②③④	T ①②
		Drawing	○	A ①②③	A ①②③	A ①②③④	A ①②
		Cut-And-Paste	○	V ①②③	V ①②③	V ①②③④	V ①②
		Sculpture/Clay	○	I ①②③	I ①②③	I ①②③④	I ①②
	10. Sewing Cooking Pounding Sawing			T ①②③	T ①②③	T ①②③④	T ①②
		Academic	○	A ①②③	A ①②③	A ①②③④	A ①②
		Non-Academic	○	V ①②③	V ①②③	V ①②③④	V ①②
				I ①②③	I ①②③	I ①②③④	I ①②
G	11. Blocks Trucks			T ①②③	T ①②③	T ①②③④	T ①②
				A ①②③	A ①②③	A ①②③④	A ①②
				V ①②③	V ①②③	V ①②③④	V ①②
				I ①②③	I ①②③	I ①②③④	I ①②
	12. Dolls Dress Up			T ①②③	T ①②③	T ①②③④	T ①②
				A ①②③	A ①②③	A ①②③④	A ①②
				V ①②③	V ①②③	V ①②③④	V ①②
				I ①②③	I ①②③	I ①②③④	I ①②
H	13. Active play			T ①②③	T ①②③	T ①②③④	T ①②
				A ①②③	A ①②③	A ①②③④	A ①②
				V ①②③	V ①②③	V ①②③④	V ①②
				I ①②③	I ①②③	I ①②③④	I ①②
	14. RELIABILITY SHEET		○				

		ONE CHILD	TWO CHILDREN	SMALL GROUPS	LARGE GROUPS
15. Transitional Activities (Washing Hands, Standing in Lines, Going to Bathroom, etc.)	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		I ①②③	I ①②③	I ①②③④	I ①②
16. Classroom Management (Handing out Paper, Cleaning up, etc.)	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		I ①②③	I ①②③	I ①②③④	I ①②
17. Out of Room	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		I ①②③	I ①②③	I ①②③④	I ①②
18. Observing/Other	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		I ①②③	I ①②③	I ①②③④	I ①②

NUMBER OF ADULTS IN CLASSROOM ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

Figure II-1 CLASSROOM CHECK LIST (CCL)

for recording activities, grouping patterns of adults and children, materials, adult responsibility, and child independence (see Figure II-1).

The observer indicates which of the 18 general activities included on the list are occurring in the classroom, what materials are being used, and the distribution of personnel (see Appendix I). For example, at any given time a classroom may contain--in various areas--a large group of children receiving instruction from a teacher using a language experience chart; a small group of children having a reading lesson and using textbooks under the direction of an aide; and four children working independently on a reading workbook. The observer records all such simultaneous activities and their settings.

2. The Five-Minute Observation (FMO) Preamble

The FMO Preamble is designed to summarize information about a selected individual called a "focus person," whose behavior and activity are to be observed for 5 consecutive minutes. (The focus person is preselected by SRI staff.) The observer writes a brief description of the activity and records the following: the CCL code number for the activity, the number of children and adults involved, and the role of adults in the activity (whether directing, participating, or observing). As soon as the starting time for the FMO has been recorded, the observation begins.

If the activity changes during the recording of the FMO, the observer subsequently codes the activity in progress at the end of the 5 minutes, in the space provided for this purpose at the end of the FMO.

3. The Five-Minute Observation (FMO)

a. The Instrument

The FMO is designed for recording the interactions among people in the classroom. The FMO consists of 76 interaction frames. Each frame has four sections: the Who section, which identifies the initiator of an action; the To Whom section, which identifies the person to whom the action is directed; the What section, which indicates the action itself; and the How section, which describes or modifies the action. The observer codes the section in each frame in sequence to form a sentence describing an action. Figure II-2 shows a sequence of two frames in which an observer recorded a question, directed to a child by the teacher, in the first frame and the response by the child in the second frame.

b. The Language

The FMO data, coded in the form of sentences, are structured as a language. The features of the FMO language are:

- The categories were carefully defined to include elements of educationally significant events. (See definitions from training manual in Appendix H.)
- The language of the categories has a pre-defined syntax.
- The collection of data (code sentences) in sequence enables strings of sentences to be examined.

1) The Vocabulary--The vocabulary of the FMO language identifies events and participants in the classroom. The first two categories of the vocabulary designate the classroom roles of the people involved:

Who and To Whom Categories	Code Vocabulary
Teacher	T
Aide	A
Volunteer	V
Child	C
Different child	D
Two children	2
Small group	S
Large group	L
Everyone	E
Machine	M

The third category of the vocabulary names the events:

What Category	Code Vocabulary
Command or request	1
Open-ended question	2
Response	3
Instruction	4
General comments	5
Praise	6
Acknowledgment	7
Productive statement	8
Corrective feedback	9
No response	10
Waiting	11
Observing, attending	12

The fourth category of the vocabulary modifies the action:

How Category	Code Vocabulary
Nonverbal	NV
Motion	X
Happy, positive	+
Sad, negative	-
Academic	A
Touch	T
Guide to alternative	G

How Category	Code Vocabulary
Reason	R
Cooperation	C
Question	Q
Firm	F
Punishment	P
Life experience	L
Specific	S
Imagination	I
Concrete object	O
Subject matter	Sy

These categories of the vocabulary summarize the essence of an occurrence, rather than giving the content or the actual words used. For example, praise is an occurrence that, according to different theories, affects the pupil in different specified ways. The language identifies the occurrences of praise but differentiates their content only by the modifiers (if any) coded in the same frames. Thus, praise for a response related to subject matter can be distinguished from praise for deportment (see Example 1 below), and specific praise can be distinguished from general praise (see Example 2 below).

	Actual Sentence	Coded Sentence
Example 1:		
Praise for subject matter	"What a pretty painting you've done!"	TC6Sy
Praise for deportment	"I'm really proud of you, class, for behaving so well while Mr. Jones was here.	TL6
Example 2:		
Specific praise	"I like the way you made that bear look so furry."	TC6SSy
General praise	"What a pretty painting you've done!"	TC6Sy

Finally, one word in the vocabulary (marked on the FMO frame to the left of the four sections) specifically states that the code sentence is not a part of a sequence of events, but is to be considered as happening at the same time as the immediate preceding sentence: Simultaneous (S).*

In addition, there is a symbol that means the entire sentence recurs in the sequence: Repeat (R). Another symbol indicates that a sentence is in error and should be eliminated from the data set: Cancel (C).

2) _The Syntax_--The rules for combining the elements of the vocabulary are quite complex. Several general rules are:

- A valid interaction sentence must contain words for _Who_, _To Whom_, and _What_.
- The sentence may include vocabulary elements as to _How_ the interaction is performed.
- The sentence may be described as happening simultaneously (S) with the preceding sentence.

Thus a code sentence can be described as a sequence of three or four vocabulary elements coded within a frame. The complexity of the language lies in the detailed rules necessary to describe which sentences are permissible, which sentences are not permissible, and which sentences are used in the definitions of variables. In addition, there are a few code sentences with special instructions for use and special meanings, e.g., TT5, NVX followed by five cancel symbols, which indicates that the teacher (as the focus person) is going out of the classroom.

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* Used primarily to show inattention of children when the teacher or a machine is instructing.

III SELECTION AND TRAINING OF CLASSROOM OBSERVERS

A. Selection

The appropriate selection and training of classroom observers is of critical importance to the effort to obtain reliable data. SRI field supervisors responsible for coordinating data collection efforts were responsible for hiring classroom observers. They selected members of the local communities who spoke its language, and were familiar with its cultural patterns and life style. Those selected often had had previous experience as site coordinators or supervising testers in the SRI Follow Through testing program as well. The criteria for selection of observers emphasized the ability to: (1) learn symbol-concept relationships quickly, (2) maintain objectivity toward behavior observed, and (3) keep confidential all data collected. Members of the local school system, relatives of personnel, and parents of children to be observed were not eligible. The final selection of three observers per site yielded an all-female observation staff. All but one had had no previous observation experience.

B. Training

At least one week before the training session, each trainee received a home training kit, consisting of code definitions and graduated coding exercises with feedback. Trainees were expected to memorize the codes and complete the exercises before beginning training. Thus, they began the training session with a basic knowledge of coding procedure. An additional exercise, without feedback, was the home training examination, which was intended to ensure that the home study had been completed and to identify any trainees who would need special attention.

The training session took place over a 7-day period. The trainees were divided into two teams, with each team supervised by three trainers. Generally, a trainer worked with four trainees. The project director worked with both training teams to ensure comparability of training.

Training began with a review and discussion of the code definitions. The trainers then role-played vignettes as practice in selecting the correct codes and in marking the codes correctly on the instrument. Exercises in completing the OSF and CCL also were included in the training.

The trainees spent approximately 2 hours observing in a local school classroom, with a trainer present to provide immediate feedback. Usually, the trainees worked as partners for each classroom observation, and both partners coded the same person simultaneously for each of their FMOs. As a check on reliability, the trainers also coded at least one FMO simultaneously with each of their trainees each day.

Videotapes of classroom activities were also used for coding practice. Although trainees find it much more difficult to code from videotapes than in a live classroom setting, the use of video tapes is an invaluable method for clarification of code definitions and achieving agreement among observers. When observers disagree, the tape can be backed up and replayed, until clarification is indicated by the attainment of a consensus.

Each day, the trainees coded a timed section of videotape and their protocols were checked against a criteria score. Code disagreements and sequences of interactions were then discussed with individual observers. Also homework exercises were assigned every day of the session. The next morning, the trainees formed small groups, corrected their homework, and discussed coding disagreements. Such discussion often resulted in a better understanding of the code categories.

Observer performance was checked daily in three ways; (1) by comparing trainees' performance on a timed criteria videotape, (2) by comparing the paired trainees' simultaneous classroom coding, and (3) by comparing trainer-trainee simultaneous coding in the classroom. In this way it was possible to discover areas of difficulty.

A criterion precoded videotape was presented to trainees for coding on the last day of the sessions. The trainees whose speed and accuracy did not meet a minimum standard of 80% agreement with the amount and code content of the precoded protocol were given a second tape to code after a discussion of the errors they had made in coding the first tape. This was done because trainees were understandably anxious about succeeding on the criterion tape and were generally fatigued by the intense 6-day training session that preceded the administration of the criterion tape. On the second tape, all but two of the trainees completed the training successfully.

C. Practice Observations

Following the 7-day training session and before the field observations began, the field observers were instructed to complete 12 practice observations in a classroom not in the sample. The completed COPs were air-mailed to SRI on the day they were completed. The observers were instructed not to begin field observations until they had been notified by SRI.

After evaluation, all these observations were accepted in terms of completeness of coding and accuracy of identifying information. Each observer was notified by telephone to begin the scheduled observations.

D. Editing and Return of Materials to SRI

Observers were instructed to check all observation booklets at the end of each day for completeness and accuracy, making sure that all circles had been filled in neatly and completely and that all stray marks had been eliminated. At the end of each week, each observer shipped back to SRI all the completed observation booklets and the completed weekly roster list. As the booklets arrived at SRI, they were further checked and were prepared for shipment to National Computer Systems for optical scanning.

IV THE SAMPLE AND PROCEDURES FOR THE SPRING 1972 CLASSROOM OBSERVATION

The Follow Through classroom observation sample for spring 1972 was selected by the Office of Education. The original sample of two sites per sponsor, totalling 24, was later cut in half, due to budgetary reasons. The basis for the selection of sites, classes, and children is described in this chapter, together with the scheduling of observations, procedures, and reliability observations.

A. Selection of Sites

One project site for each Follow Through sponsor was selected for classroom observation. The sites, sponsors, and selection criteria are shown in Table IV-1.

B. Selection of Classrooms per Site

The study design provided for the observation at each of the twelve sites of four Follow Through classrooms at each of three grade levels. In addition, two comparison classrooms at each of the same grade levels were to be observed. The grade levels designated were the first three grades in the respective schools (Kindergarten through Second Grade, or First through Third Grade at schools without Kindergarten). For High/Scope, however, observations were collected in Kindergarten through Third Grade. (Kindergarten had been started at that site in 1970.)

For each of the classrooms selected, four days of observation were scheduled. Observers were to spend two days focusing on the adults (75 percent teacher focus; 25 percent aide focus) and approximately three weeks later were to spend two days focusing on preselected children.

Table IV-2 lists the 12 selected sponsors; their project sites; and the number of classrooms at each grade level observed at each site.

As in the Follow Through testing, the classroom teacher code was used to identify the classrooms to be observed. In cases where the number of tested classrooms exceeded the number of classrooms in which

Table IV-1

SITE SELECTION FOR CLASSROOM OBSERVATION 1971-72

Site and Sponsor	Selection Criteria* A	B	C	D
Duluth, Minn. Far West Laboratory (FW)	X	X	X	
LaFayette, Ga. University of Arizona (UA)	X	X	X	
Tuskegee, Ala. Bank Street College (BC)	X	X	X	X
Pickens County, Ga. University of Georgia (UG)		X	X	X
Tupelo, Miss. University of Oregon (UO)	X	X	X	
Portageville, Mo. University of Kansas (UK)	X	X	X	
Okaloosa County, Fla. High/Score (HS)	X	X	X	
Chattanooga, Tenn. University of Florida (UF)	X	X	X	X
Paterson, N.J. Educational Development Center (ED)	X	X		
Montevideo, Minn. University of Pittsburgh (UP)	X	X	X	X
Atlanta, Ga. Interdependent Learning Model (IL)		X	X	
Philadelphia, Pa. Southwest Laboratory (SE)		X	X	

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*Selection Criteria

A = Existence of Head Start Planned Variation on site (follow-up data).

B = Availability of kindergarten through second grade or first through third grade to be tested in the spring of 1972 in order to permit complete overlap between testing and observation.

C = The presence of children who entered Follow Through in the fall of 1969, to ensure the availability of baseline data.

D = Plans for a 1972 Follow Through Summer Program. (An SRI Summer School Study of educational loss over the summer is in developmental stage at this time.)

Table IV-2

CLASSROOM SAMPLE FOR CLASSROOM OBSERVATION 1971-72

Year Entered	Grade Level/Stream*					
1969-70					K	1
1970-71			K	1	1	2
1971-72	K	1	1	2	2	3

	Number of Classrooms											
	K		1/ef		1/ek		2/ef		2/ek		3/ef	
Sponsor and Site	FT	NFT	FT	NFT	FT	NFT	FT	NFT	FT	NFT	FT	NFT
Far West Laboratory Duluth, Minn.	4	2			4	2			4	2		
University of Arizona LaFayette, Ga.			4	2			4	2			4	2
Bank Street College Tuskegee, Ala.			4	2			4	2†			4	2‡
University of Georgia Pickens County, Ga.			4	2			4	2			4	2
University of Oregon Tupelo, Miss.			4	2			4	2			4	2
University of Kansas Portageville, Mo.	4	2			3	2			3	2		
High/Scope Okaloosa County, Fla.	4	2			4	2	4	2			4	2
University of Florida Chattanooga, Tenn.			4†	2			4	2			4	2
Educational Development Center Paterson, N.J.	4	2			4	2			4	2		
University of Pittsburgh Montevideo, Minn.	4	2			4	2‡			4	2‡		
Interdependent Learning Model Atlanta, Ga.	4	2			4	2			4	2		
Southwest Laboratory Philadelphia, Pa.	4	2			4	2			4	2		
Subtotal	28	14	20	10	27	14	24	12	23	12	24	12
			FT=47		NFT=24		FT=27		NFT=24			
Grand Total					FT=146		NFT=74					

*ek = entering into the school program at the kindergarten level.
ef = entering into the school program at the first grade level.

† one class is mixed (M).

‡ both classes are mixed (M).

observations were desired, the selection for observation was made by SRI (with the assistance of Follow Through directors) on the basis of the following priorities:

Priority 1--Teachers who had been observed previously by SRI.

Priority 2--Teachers who had been in the model for at least a year and whose classrooms were tested in the fall of 1971.

Priority 3--Teachers who had worked in the sponsor's model for one year or more (tested in the fall of 1970).

Priority 4--Teachers who had worked in the model since September 1971 and whose classrooms were tested in the fall of 1971.

Priority 5--Teachers who had worked in the model since September 1971.

Priority 1 applied in five of the twelve projects, and involved 19 teachers who were automatically selected by SRI. Teachers who were not automatically selected under Priority 1 were eligible for selection successively under Priority 2, 3, or 4 by the SRI field supervisor responsible for the site and by the Follow Through director on the site. In two instances sponsors requested the substitution of well-qualified teachers who also met the priority requirements; SRI honored these requests.

Field supervisors and Follow Through directors also selected the comparison classrooms, except where Priority 1 was applicable. Field supervisors informed the Follow Through directors that the comparison classrooms selected would be used in the spring sample, and that classes selected at Kindergarten or first grade should consist of children on whom data had been collected.

C. Scheduling of Observations

In order to eliminate any bias in the order in which classes were to be observed, SRI prepared for each site an observation schedule on a random basis. Observers were instructed not to deviate from the schedule; however, if a schedule adjustment became necessary, the observer was to consult with and substitute the next available scheduled classroom. In many cases, teacher absenteeism or prior commitments--such as field trips, meetings, and the like--necessitated rescheduling. Such rescheduling often interfered with the plan to observe for two consecutive days in each classroom.

D. Focus of Observations

Two kinds of data were collected by observers: adult-focus data and child-focus data. During the first 2-day observation period, observations focused on an adult in the classroom; during the second 2-day observation period (1-3 weeks later), children were the focus of observations. The observer was instructed to record on the FMO all events in which the designated focus person (adult or individual child) was involved. The observer completed an interaction frame each time the focus person made a statement, as well as any time someone spoke to the focus person. If the focus person was not interacting with anyone--if, for example, he was engaged in self-instruction--this behavior was also recorded. No actions (activities or comments) in the classroom were coded unless they were directed at the focus person or the focus person was a participant.

Although every adult and child in the classroom was recorded on the CCL, when the observer began the FMO, only those interactions that occurred between the adult or child who was the focus of the observation and whomever or whatever she or he interacted with were to be coded.

1. Adult-Focused Observations

Observers observed only those teachers (and their aides) designated by SRI. If a substitute teacher was in charge of a classroom on the day of the scheduled observation, observers were instructed to rearrange their schedules so that they would observe the class when the regular teacher was again in charge.

Observers were expected to complete three FMOs on the designated classroom teacher and one FMO on an aide each hour. If the teacher did not have an aide, all four FMOs completed each hour were to be focused on the teacher. If two teachers shared responsibility for a classroom, each teacher was to be the focus of an observation twice each hour. All adults other than the teacher(s) and aide(s) in a classroom were coded as volunteer (V). Volunteers were not to serve as focus persons.

2. Child-Focused Observations

When the classroom had been selected, the children to form the child-focused sample were selected by SRI for observation during a 2-day period. In order to ensure a sample of eight for observation, 14 children were preselected to allow for possible problems, such as absenteeism and attrition. The 14 children selected from each class were listed in the order of the following priorities:

Priority 1--Children who had the most complete data history in the SRI data bank (who had been tested more than once and whose parents had been interviewed).

Priority 2--Children who had been tested once and were in the parent interview sample.

Priority 3--Children who had either been tested or were in the parent interview sample.

The source of information for the selection of children was the classroom roster. All Follow Through children, as well as the Non-Follow Through children tested in fall 1971, were selected from all 1971 classroom roster printouts.

Eight children were observed twice each day in each classroom in the order shown on the list prepared by SRI, from Child 1 to Child 8. The second day, the observer began coding with Child 5 (Child 5-Child 8, Child 1-Child 4). The shift in sequence avoided a child's being observed in exactly the same activities on the second day as on the first.

According to the instructions, if one of the first eight children was absent, the observer replaced that child with the ninth child on the list. Prior to beginning her observations, the observer obtained from the classroom teacher the following information:

- Identification of each child on the child-focused list
- Schedule of the day's activities
- Expected deviations of the listed children from the schedule.

On the basis of this information, the observer scheduled her observations of the children at regular intervals, so that observations for each child could be made both early and late in the day.

In earlier use of the CO instrument teachers and aides were the only foci of observation. Since the classroom adults are the primary vehicles through which the sponsors implement their educational models, a reasonable assumption was that adult behavior could best reflect the presence of the model. However, since some sponsors merely share their educational philosophy with teachers and aides rather than giving them specific training and instruction in administering a curriculum and since some models are described in terms of the behavior expected of children (persistence at tasks, questioning the teacher) or in terms of "classroom atmosphere," it appeared that observations of children would be another way to reflect the presence of the model. It also appeared that descriptions of the models based on children's behavior might reduce a bias in the instrument and include variables more of interest to sponsors with unstructured non-academically oriented models.

E. Number of Observation Days

The spring 1972 classroom observation data collection design called for each class to be observed a total of 4 days: two consecutive days of observations focused on adults and two consecutive days of observations focused on individual children. Observations were scheduled over a 6-week period. All adult-focused observations were conducted during the first 3 weeks and all individual child-focused observations were made during the last 3 weeks of the 6-week period. The individual child observations were to be conducted in the same order as the adult observations had been completed, i.e., the children in each teacher's class were to be observed 3 weeks after the teacher/aides had been observed.

Two days of adult-focused observations were considered necessary to measure teacher processes and the degree of model implementation, and 2 days of individual child-focused observations were considered necessary to sample classroom behavior.

The observation schedule was arranged so that each observer would observe 4 days a week. The primary reason for this arrangement was to ensure that the 2 days of adult-focused observations, and the 2 days of child-focused observations, were consecutive. It was considered undesirable to have some observations conducted on consecutive days and others split over a week-end (i.e., Friday and Monday).

In addition, this arrangement was to allow for:

(1) Schedule adjustments that might be necessary because of school holidays, sickness, weather, and the like.

(2) Maintaining high observer performance over the 6-week period.

(3) An extra day for observers so that they could edit their work and send it to SRI at the end of each week.

F. Number of COPs per Hour and Day

Observers were expected to complete 4 to 5 observation booklets each day. Each observation booklet contains 4 COPs; therefore, completion of

16-20 COPs was expected of each observer each day. On individual child-focused observation days, each of 8 children was observed twice, so the number of COPs to be completed was 16. On adult-focused observation days, COPs completed at the rate of 4 an hour over the usual 5-hour school day would result in 20 per day.

The COPs were to be spaced evenly throughout the observation day and, ideally, to be completed at the rate of 4 an hour. However, observers in half-day Kindergartens had to observe more frequently than four times an hour to complete the desired number of COPs.

G. Reliability Observations

Reliability checks were made of each classroom observer in the field during the first 3 weeks of the adult-focused observations. The reasons for the reliability checks were: (1) the adult-focused observations cover a wider variety of activities than do child-focused observations and therefore are subject to greater error; and (2) early reliability checks enabled observers to benefit from SRI's feedback. Although observers had been encouraged to call the director of the project when problems occurred, the opportunity to discuss problems with an on-site trainer during their first days of field observations was advantageous. Five SRI staff members shared the responsibility for the reliability checks by coding six to eight FMOs simultaneously with each field observer on site. The reliability checks were conducted in sample classrooms on regularly scheduled days of observations. The field reliability checks not only served as a check on the continued reliability of all observers, but they served a second purpose as well. The observers had been instructed to refrain from making comments to anyone regarding their personel feelings about the classroom events they observed. The presence of an SRI trainer on site for simultaneous coding allowed for discussion and the private airing of field observers' feelings regarding classroom events. These discussions helped by encouraging the maintenance of classroom observer objectivity and professionalism.

V DESCRIPTION OF THE VARIABLES

A. Introduction

The categories included on the classroom observation instrument (COI) were designed to reflect classroom arrangements and elements of events considered educationally significant by one or more of the sponsors. From the coded categories on the observation protocols, the variables of interest in the analyses were defined, and from the number of times certain categories were coded, frequency data on the variables were computed. However, it would have been neither practical nor informative to treat all codes and all possible combinations of codes (over 100,000) as variables in our analyses. Therefore, only those categories and combinations of categories considered potentially valuable to one or more of the analyses performed in the current study were used to define variables for which frequency of occurrence could be measured.

Several criteria were used to establish the relevance of process variables for this study. In general, a variable was created if:

- It represented an activity or an atmosphere which one or more sponsors regarded as conducive to intellectual, social, or personal growth in children. Such a variable should relate positively to test scores.
- It represented a behavior on the part of the adult or child that one or more sponsors regarded as a useful outcome in itself. Such a variable may be viewed as a dependent variable.
- The values that the variable might assume at different sites would permit distinctions to be made among sponsors' models or between Follow Through and Non-Follow Through classrooms.

In the remainder of this chapter the processes used to transform coded categories from the classroom observation instrument into variables will be described and then several exploratory analyses of variables will be introduced.

Many of the variables used in the 1971-72 analyses are identical to ones used successfully last year. The variables on which the previous analysis (examining data from the 1970-71 school year) was based are listed in Appendix M and additions and improvements in them are identified and discussed in the present analyses. Throughout the report, two conventions are followed in referring to the variables. The first convention involves the portion of the instrument from which the data were taken to form the variable. Since any given variable is associated with only one section of the instrument, variable numbers are always preceded by a section identification, e.g., OSF-2, CCL-8, FMO-16.

The second convention results from the use of both child-focused and adult-focused observations. Separate data tapes were generated for the child-focused and adult-focused data. In general, the value assigned to a classroom on a given variable is based on its frequency of occurrence summed across all observation days. However, for certain analyses it was considered more appropriate to use only the child-focused or the adult-focused data. In such cases, variables are identified, for example, as FMO-64^{a} or FMO-64^{c}. Any variable number not followed by the superscript "a" or "c" refers to data combined across all observation days.

In the analyses described in Chapters VI, VII, and VIII, values may be assigned to variables at several different levels of aggregation--usually either the classroom, the grade level, or the site/sponsor. The unit of analysis also varies. Ordinarily the unit of analysis is the same as the unit of measurement. For the OSF, completed once each day, the measurement unit is the day. For the CCL, which is completed once per COP, the unit of measurement is the COP. For the FMO variables, the unit of measurement is the frame or individual sentence. Instances in which the unit of analysis differs from the unit of measurement will be identified as they appear.

Appendix A lists all variables created for the current study and provides operational definitions of the variables. The following sections discuss in some detail the creation of variables for each portion of the instrument and identify those variables actually used in the analyses.

B. Variables from the Observation Summary Form (OSF)

In general, the OSF variables are taken directly from the coded categories on the observation instrument. Variable OSF-15 "Child/adult ratio," however, requires combining data from several coded categories. For each observation day the number of children present (OSF-11) is divided by the number of teachers, aides, and volunteers present (OSF-12, -13, and -14, respectively). An average ratio is then computed.

OSF variables are generally defined in one of three ways. For some variables--e.g., OSF-10, "Number of children enrolled"--values are averaged across all observation days. In other cases, the assigned value is derived from the code recorded on the majority of observation days. For example, the observer records each day whether the lighting in the classroom is adequate. If the observer records adequate lighting on two or more of four observation days, Variable OSF-27 will be given a value of "1." For most of the dichotomous variables, however, this majority rule is not used; the variable indicates, instead, whether a given procedure was recorded on any observation day. The value assigned to any given classroom on OSF-31, for example, indicates whether pictures of various ethnic groups were displayed on one or more observation days. The rules used for each of the OSF variables are listed in Appendix A.

C. Variables from the Classroom Check List (CCL)

Appendix A contains a complete list of the Classroom Check List (CCL) variables. Out of the original 63 CCL variables, CCL-1 through CCL-53 were used in the analyses described in Chapters VI through VIII.

The CCL variables 1 through 13 describe various classroom activities--e.g., reading, social studies, arts and crafts, snacks. Values assigned to these variables reflect average frequency of occurrence per Classroom Observation Procedure (COP). For each COP, an activity is recorded as having occurred if even one person in the room was engaged in that activity. The average is derived by counting the number of times the activity was recorded across all observation days and dividing by the total number of COP's completed for that classroom. For example, CCL-8, "Guessing games," would be assigned a value of 0.125 if that activity was recorded on 8 out of 64 CCL's.

Variable CCL-14, "Wide variety of activities," was created to reflect the average number of activities occurring simultaneously in the classroom. It is defined as the average number of separate activities recorded per CCL (based on CCL-1 through CCL-13) and can take on values from 0 to 13. Variable CCL-27, "Academic activities," is based on a subset of the activity variables (CCL-4 through CCL-7) and reflects the extent to which math, reading, social studies, and science activities occurred simultaneously. Variable CCL-27 can [illegible] values between 0 and 4.

Some sponsors, e.g., EDC, expect that children will be engaged in different pursuits in the same room ; values assigned to "Wide variety of activities" (CCL-14) on EDC classrooms, therefore, should be relatively high. Other sponsors are more specifically interested in the extent to which separate academic activities occur in their classrooms. For these sponsors, relatively high values on CCL-27 would be more meaningful than values on the inclusive variable CCL-14.

Activity variables described above indicate only the relative frequency of certain types of activities. They provide no information regarding either the groupings of children and adults as they participate in various activities or the use of classroom materials in connection with the activities. The remaining CCL variables were created to provide this kind of information.

Variables CCL-15 through CCL-26 and CCL-34 through CCL-52 reflect the simultaneous combinations of a particular adult role, group size, and one of the two general activity variables--for example, "Aide with small group in academic activities" (CCL-21). Values assigned to these variables indicate average frequency of occurrence per COP. CCL-21 might be expected to take on a higher value for classrooms or projects representing models (e.g., U. Oregon) which place heavy emphasis on basic skills and train parent aides to teach such skills to small prestructured groups of children, and to show a lower value for models (e.g., EDC) which advocate that children should be free to work individually, with one other child, or with a small group, and that the adult should interact with the children to the extent she judges she can assist.

Variables CCL-28 through CCL-33 are defined by the joint occurrence of certain kinds of materials and types of activities. Variable CCL-31, "Use of games in arithmetic and reading activities," for example, reflects an essential element of the ILM curriculum. The frequency of joint occurrence of these two categories (e.g., arithmetic and games) should be higher in ILM than in models which do not specify the use of games in connection with arithmetic and reading.

D. FMO Preamble

Variable CCL-58, obtained from the FMO Preamble section of the COI, describes the activity in which the focus person was engaged at the beginning of the 5-minute observation period. This variable is used as a blocking variable in the analysis of sponsor differences in Chapter VII. The seventeen types of activities listed on the instrument were partitioned into the following four categories:

Category 1: Arithmetic, numbers, math (Activity 4)

Category 2: Reading, alphabet, language development (Activity 5)

Category 3: Broad activities (Activities 2, 3, 6 through 12)

Category 4: Snack, lunch, other (Activities 1, 13, 15 through 18).

Appendix J discusses this partitioning in more detail. In particular, Table J-1 displays the frequencies of each activity category for each sponsor and for each grade level within a sponsor.

E. Variables from the Five-Minute Observation

1. General

In Chapter II, the codes for the Who, To Whom, What, and How categories have been listed, and the formation of sentences has been explained. The reader is referred to Chapter II-B so that he will be able to follow the notation in this chapter; e.g., TC3Sy, denotes teacher (T), responding (3) to child (C) regarding subject matter (Sy).

FMO variables are defined by the kinds of sentences that are permissible as examples. Thus some variables, e.g., "Child talking to adult" (FMO-1) are very inclusive. The definition for FMO-1 is written as follows:

FMO-1 Child talking to adult

Who	To Whom	What		How
C	T	1	6	
		2	7	
D	A	3	8	
2	V	4	9	Not NV
S		5		
L				

Translated this means that a child (C) addressing himself to a volunteer (V) in the classroom and requesting (1) her to come over to his table counts as an occurrence of variable FMO-1 (CV1). A large group of children (L) addressing the teacher (T) and shouting "Good morning, teacher," "Hi, Miss Smith," and so forth (5) is also an example, and counts as an occurrence of that same variable (LT5).

Other variables, such as FMO-26, are not at all inclusive. For example:

FMO-26 Child instructing self in academic activity by using objects

Who	To Whom	What	How
C	C	4NV	AO
D	D		
2	2		

Only three sentences are treated as admissible examples of FMO-26:

- The focus child--self-instructing nonverbally--in an academic subject, using objects (C C 4NV AO).
- A child who is not the observation focus doing the same thing (D D 4NV AO).
- Two children, working together in academic subjects, using objects (2 2 4 NV AO).

Some of the interaction variables describe sequences of events. Such variables are defined by the occurrence of a series (usually two or three) of permissible sentences. An example is FMO-105.

FMO-105 Adult giving children feedback for academic response to adult academic direct question

Who	To Whom	What	How
	C		
T	D		
A	2	2	
V	S		
	L		

followed by:

Who	To Whom	What	How
C			
D	T		A
2	A	3	AO
S	V		
L			

followed by:

	C		Sy	SSy
T	D	6	+Sy	GSy
A	2	7	-Sy	RSy
V	S	9	FSy	QSy
	L		SSy	+TSy

As its name implies, this variable describes a sequence of three events. Occurrences of the variable are counted only when all three events have been recorded in contiguous frames in the specified order; that is,

(1) An adult asks a child (or group of children) a question

(2) The child (or group of children) responds to the question

(3) The adult gives some kind of feedback (acknowledgment, praise, correction, etc.).

2. Difficulties

In some earlier observation procedures, for both classroom and small group processes (e.g., Flanders, 1970; Spaulding, 1967), the variables of interest are specified at a single level of molarity, in keeping with some fairly uniform theoretical conception or viewpoint. Since the COI is based on several sponsors' conceptions of the important factors in a classroom, the variables defined range from very elementary categories to complex interaction sequences. Still, the COI variables do not capture the factors important to all sponsors equally well. Because sponsors have different theories, different styles of implementation, and different degrees of explicitness in stating both, the variables characterize some models better than others.

Each sponsor is a kind of educational theoretician to the extent that he adopts a (consistent or eclectic) set of educational principles. It has been from these principles--some extremely well specified in physical, behavioral, and operational terms by the sponsor, and others not--that attempts have been made since 1970 to build the categories and the coding system and to define variables that rely primarily on one category in a frame, an entire coded sentence, or a sequence of sentences. For sponsors whose level of variable specificity would ideally be represented in such terms as "teacher encouraging children to engage in self-analysis," the FMO sentences may be inadequate, and such sponsors may be more pleased with CCL variables* that simply describe the organization of staff members, children, and educational materials, or with the more global factors obtained through analysis of the FMO variables to describe their programs. Attempts to combine variables and to deal with this level of description can be found in Chapter VII.

F. Exploratory Analyses

Several supplementary explorations into the nature of the observation data were attempted. These descriptive analyses are explained below.

1. The Dictionary

An occurrence of a variable is counted each time any permissible sentence is noted. Obviously, occurrences of FMO-1 could be made up of relatively equal numbers of occurrences of the acceptable sentences mentioned above, or an occurrence could be made up exclusively of a "CT5 not-NV" frame. If the latter were the case, the variable would be better named "child commenting to teacher." That is, if this sentence constituted the vast majority of the occurrences of FMO-1, the variable would be identical to FMO-32, "Child commenting to adult." It is also possible that the contents of a variable differ among sponsors. It may be, for example, that when FMO-1 is counted as having occurred in U. Oregon classrooms, it primarily consists of sentences such as SA4A, and when FMO-1 is counted as having occurred in Bank Street College classrooms, it primarily consists of sentences such as CT1Sy.

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*Even the CCL variable definitions are problematic, of course. When requested to help with an operational definition for the category "arithmetic, numbers, math," EDC responded: "The point of an open classroom is that you don't know beforehand which informal activity will help reading or math and that it is the totality of experience that does... unless an observation instrument takes into account the total phenomenon of interaction it is not valid for the open classroom...."

In any case, the meaning of the variable can be expressed at the level of the sentences that actually occurred and were counted as examples of it. To explore the variables at this level, every unique sentence, its associated frequency, and its percentage contribution to the total variable score was computed for each sponsor. This computation was called the dictionary. The 500 most frequently occurring sentences were sorted through the program that created the variable. Separate dictionaries were made for child-focused and adult-focused data. The dictionaries, which contain more than 4000 pages, are not reproduced here, but Table V-gives a sample for FMO-81, "adult instructing children."

Table V-1 shows that while not every possible sentence occurs equally often, there is no single sentence that dominates the variable. Although there are not many instances of volunteers instructing children, the name "adult instructing children" nevertheless describes the variable better than an alternative, e.g., "teachers or aides instructing children."

For each of the sponsors, the variable does appear to be composed of different sets of sentences. High/Scope and U. Oregon have approximately the same total frequency of occurrences of this variable (3158 and 3175, respectively) and are therefore alike at one level of analysis. However, in High/Scope classrooms the three dominant sentences are TL4, TC4A and TS4 and in U. Oregon classrooms the dominant sentences are TS4A, AS4A and TL4A.[*] Thus, in High/Scope classrooms most instruction is given by the teacher and it is in areas not considered strictly academic. In U. Oregon classrooms most of the instruction is in academic subjects and a considerable portion is given by aides.

While the dictionary was not fully analyzed, it was considered a useful way to view the data in detail and to verify that the ordinary English definitions of the variables corresponded to the meaning in terms of the sentences which comprised it. It appears to be a useful technique for future analyses of classroom observation data.

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[*] For purposes of this illustration, we assume here that the sentences are reliable, and equally so.

Table V-1

FREQUENCY OF SENTENCES DEFINING VARIABLE FMO-81: ADULT INSTRUCTING CHILDREN (Adult Focus)

Symbol	FW	UA	BC	UG	UO	UK	HS	UF	ED	UP	IL	SE	NFT	Total
TL4	461*	959†	917†	1571†	157	229*	396†	470*	260	1161†	297*	578‡	6432‡	13888
TL4A	656†	465	715‡	594	209*	64	140	875†	588†	221*	452‡	927†	7669†	13575
TC4A	621‡	410	410	874‡	163	580†	313‡	369	341*	364‡	291	228	2558*	7522
TS4A	176	260	267	799*	882†	88	241	494‡	533‡	112	506†	188	1045	5591
TC4	234	603‡	643*	213	116	156	290	52	239	112	135	111	1454	4358
TS4		490*	526	83		115	293*	67	255	62	122	261	778	3052
AC4A	334	55	148	188	168	342	139	125	108	138	125	90		1960
AS4A		56	178	210	438‡		121		77		108	52		1240
AL4A	50	124	140	76	57	59	152	254	93		59	159		1223
TL4AO	37							227		25		326*	543	1158
AL4		157	46	234	113		60		83			193	262	1148
TL4O	45	83					42	110	44	56	76	78	450	984
TS4AO		149					66	298	52		85	158		808
AC4	48		192	101		46	126		69	29	31			642
AS4			127	146	124	49	71		68					585
TC4AO	68	90	62	88			38	104		61	46			557
TL4NVA												76	401	477
TD4A	54	55			47	23			74					253
TS4NVA				77	139		32							248
T24A	46				31		44		63		61			245
TC4O	43	46	60				37				37			223
VL4A	94						77					45		216
AC4AO								88			29	61		178
TL4+		53		96										149
TC4MULT							68	77						145
T24	36						44		58					138
TC4NVA					118									118
VL4		81												81
TD4	35	43												78
TS4O		64												64
TL4MULT	36									25				61
TL4X										56				56
AS4NVA												49		49
VL4O							48							48
A24A	48													48
VS4							46							46
AC4NVO									45					45
AD4A										38				38
AS4AO									34					34
AC4MULT											29			29
Total	3521	4506	4756	5772	3173	194	158	3872	3472	2627	2855	3918	23968	

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[*] Third most frequent for this sponsor.

[†] Most frequent for this sponsor.

[‡] Second most frequent for this sponsor.

2. Investigation of FMO Language in Adult- and Child-Focused Data

There are over 100,000 distinguishable sentences that it is possible to code. We performed an analysis of the data to determine how many of those possible sentences were actually coded and to determine the percent of the total number of sentences coded that were accounted for by the most frequent sentences. These descriptions indicate the range of behaviors that were actually observed and the types of behaviors that make up a large part of what goes on in the classrooms.

For the adult-focused data, 578,715 frames were acceptably coded. The number of unique sentences coded in these frames was 4554.* For the child-focused data, 468,984 frames were legally coded into 3478 unique sentences. Tables V-2 and V-3 give the 20 most frequent sentences for the adult-focused and child-focused data, respectively.

The tables reveal the economy of the use of the language, since seven sentences account for over half of the interactions in the child-focused data and twenty sentences account for over 40% of the interactions in the adult-focused data.

A second aspect of the tables is the difference between sentences for the adult focus and those for the child focus. Nearly half the sentences (48% in the first 20 sentences) in the child-focus table describe one child involved in study (CC4__) or one child attending to someone (C__12__). In the adult focus table, either the teacher is directing an interaction toward a child or the child is responding to the teacher. These differences reflect the rules for observers in attending to the focus subject of the observations: Either, "Look at the child and record what he/she does and who he or she interacts with" or "Look at the adult and record what she does and who she interacts with." Adult focused and child focused observations obviously produce different kinds of data. The use of child focus provides new information on classroom process.

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* For this count, a sentence with simultaneous code (S) is considered to be distinguishable from the same sentence that does not have the simultaneous code.

Table V-2

TWENTY MOST FREQUENT UNIQUE SENTENCES IN THE ADULT FOCUS DATA

Rank	Who	To Whom	What	How	Number of Frames Coded	Percent of Total Frames Coded	Cumulative Percent
1	C	T	3	A	24,429	4.2	4.2
2	T	C	1	Q	21,277	3.7	7.9
3	T	C	1	--*	20,911	3.7	11.5
4	C	T	3	--	18,317	3.2	14.7
5	T	T	5	NVX	17,376	3.0	17.7
6	T	T	5	NV	17,341	3.0	20.7
7	T	L	12	--	14,622	2.5	23.2
8	T	C	7	Sy	13,833	2.4	25.6
9	T	L	4	A	13,409	2.3	28.0
10	T	L	4	--	13,147	2.3	30.2
11	T	C	12	--	10,034	1.7	32.0
12	T	L	1	Q	8,403	1.5	33.4
13	T	L	1	--	8,350	1.5	34.9
14	T	C	4	A	7,716	1.3	36.2
15	T	S	12	--	6,146	1.1	37.3
16	T	S	1	--	6,145	1.1	38.4
17	T	S	4	A	5,648	1.0	39.3
18	C	T	3	NV	5,615	1.0	40.3
19	C	T	4	A	5,573	1.0	41.3
20	C	T	3	NVX	5,361	0.9	42.3

Total frequency: 578,715

Total unique sentences: 4,664

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*A blank in the How column indicates that nothing was coded.

Table V-3

TWENTY MOST FREQUENT UNIQUE SENTENCES IN THE CHILD FOCUS DATA

Rank	Who	To Whom	What	How	Number of Frames Coded	Percent of Total Frames Coded	Cumulative Percent
1	C	C	4	NVA	99,338	21.2	21.2
2	C	C	5	NV	31,439	6.7	27.9
3	C	C	11	--*	28,784	6.1	34.0
4	SC†	T	12	--	24,936	5.3	39.4
5	C	D	12	--	20,580	4.4	43.8
6	C	C	4	NVO	15,578	3.3	47.1
7	C	C	4	NV	14,250	3.0	50.1
8	C	C	5	NVX	13,759	2.9	53.1
9	C	T	12	--	12,858	2.8	55.8
10	SC	M	12	--	12,427	2.7	58.5
11	SC	D	12	--	6,227	1.3	59.8
12	C	C	4	NVAO	5,773	1.2	61.0
13	SC	A	12	--	5,255	1.1	62.1
14	C	D	5	--	5,073	1.1	63.2
15	C	C	4	A	4,968	1.1	64.3
16	C	D	8	--	4,157	0.9	65.2
17	T	L	1	--	3,948	0.9	66.0
18	D	C	5	--	3,773	0.8	66.8
19	SC	V	12	--	3,524	0.8	67.6
20	T	L	1	Q	3,199	0.7	68.3

Total frequency: 468,984

Total unique sentences: 3,478

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[*] A blank in the How column indicates that nothing was coded.

[†] An S preceding a sentence indicates that simultaneous was coded.

VI PRELIMINARY ANALYSIS

A. Introduction

It is well known that events of interest to the social sciences do not occur in readily controllable environments. For this reason, it is necessary to recognize that the Follow Through evaluation exhibits the strengths and weaknesses inherent in a field experiment. A major limitation of a field experiement is the need to operate with less control than can be exercised in a laboratory experiment. This limitation poses problems of interpretation as to the relationships between specific variables and outcomes. As a result, it is necessary to qualify findings and conclusions.

However, despite the difficulties, a field experiment typically can provide a much fuller picture than a laboratory experiment. A unique feature of the field experiment was discussed by Kerlinger (1964):

> The more realistic the research situation, the stronger the variables. This is one advantage of doing research in educational settings. For the most part, research in school settings is similar to routine educational activities, and thus need not be necessarily viewed as something special and apart from school life...Realism...increases the strength of the variables. It also contributes to external validity, since the more realistic the situation, the more valid are generalizations to other situations likely to be.

It would have been desirable to make the observations in this study periodically during the school year. Fiscal constraints, however, limited the study to one observation period.

The purpose of this chapter is to describe and analyze the variability that obtained on a number of specified dimensions both within sponsors' models and across sponsors' models. The degree of control achieved in the observations of classrooms in the Follow Through experiment will be described in order that the study results and conclusions can be qualified where necessary. Qualifications and caveats are necessary; however, even where findings cannot be claimed as definitive, they may still be valuable as indicators. Since the unique value of field research stems from its realism and its inherent external validity, findings from field research are not easily dismissed.

To characterize a process or an effect of a Follow-Through sponsor, it is necessary to control for uniformity in observation procedures and to take account of differences in the characteristics of study subjects, in teacher training, and in comparability over time of Follow Through and Non-Follow Through classrooms by site. Areas that could not be tightly controlled in this study (because of the field nature of the experiment) have been carefully assessed in terms of their influences on the results. In the analysis presented in this chapter, the specific study dimensions to be discussed are:

- The demographic and entering characteristics of the treatment groups.
- The extent of Follow Through diffusion to Non-Follow Through classrooms.
- The experience and training of Follow Through teachers and their satisfaction with the model.

These descriptions will be followed by:

- An assessment of variability among classrooms and grade levels over time.
- An analysis of the reliability and uniformity of the observation procedure.

B. Comparison of Demographic and Entering Characteristics and Examination of Diffusion

1. Demographic and Entering Characteristics

This section describes the variation in the demographic and entering characteristics of the children in the study, which necessarily reflect the corresponding characteristics found in the selected communities. Since the criteria for choosing comparable study sites excluded such characteristics as ethnic composition, regional character, availability of preschools, or entering abilities, there are gross differences among treatment groups across sites on these characteristics. Differences within sites between Follow Through and Non-Follow Through also are present, because the Follow Through subjects--unlike Non-Follow Through subjects--are selected from disadvantaged children with Head Start experience. In many communities, where children from disadvantaged families represent an ethnic minority, it was impossible to obtain a satisfactory match between Follow Through and Non-Follow Through classes.

In order to measure the extent of these disparities, comparability assessments were made of: (1) Follow Through groups across sites and (2) Follow Through and Non-Follow Through groups. Follow Through groups were compared across sites to assess the degree and type of differences evident in the demographic and entering characteristics. Also assessed for each site was the match on these characteristics of Follow Through and Non-Follow Through groups. In the event that too many of the matches within site were found to be unsatisfactory, an alternative comparison group--composed of Non-Follow Through students pooled across sites--was used and then assessed.

Table VI-1 summarizes the demographic and entering data for Follow Through and Non-Follow Through children who were in the entering grades (kindergarten or first) in the Fall of 1971, for each site.* The data on ethnicity and Head Start experience were taken from the classroom rosters. Information on occupation of head of household and mother's education was taken from the parent interview in the Fall of 1971. The baseline test data are from the Fall 1971 test period.

There are extreme differences, as presented in Table VI-1, among sponsor-affiliated groups on many of the demographic variables. This is especially true for ethnicity, where the percent of black children ranges from zero for U. Pittsburgh to 96% for Bank Street and EDC. The difference in mother's highest educational level and in occupation status of the head of household are not as extreme. In the case of mother's education, and of those whose highest educational level is known, invariably for all sponsors and across all sites, the highest percentage of mothers have a high school education. The mean is 64%, with a range from a low of 49% for the UK-sponsored classes to a high of 87% for the FW-sponsored classes for mothers with high school education. Similarly, the highest percent of respondents whose occupational status was known--across all sites--reported being in the semi-skilled category. However, it is possible that some of the figures on education and occupational level may be unreliable due to the percent of "unknown" responses. In the Bank Street classes, 76% were marked unknown both in educational level and in occupational status; for classes sponsored by U. Florida Interdependent Learning Model, and Southwest Laboratory the percentage of unknowns in both categories was even higher.

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*See Appendix E, Student Demographic Data, for definitions of these data.

Table VI-1

COMPARISON OF FOLLOW THROUGH AND NON-FOLLOW THROUGH CHILDREN
ON DEMOGRAPHIC AND ENTERING CHARACTERISTICS FOR THE ENTERING GRADE BY SITE--FALL 1971

	FW*		UA†		BC†		UG†		UO†		UK*		HS*		UF†		KD*		UP*		IL*		SE*		Pooled	
	FT	NFT	FT	NFT	FT	NFT	FT	NFT	FT	NFT	FT	NFT	FT	NFT	FT	NFT	FT	NFT	FT	NFT	FT	NFT	FT	NFT	FT	NFT
Number of children	95	58	97	57	119	51	99	43	106	49	108	38	100	58	135	65	103	43	78	44	109	65	107	51	1,265	621
Ethnicity																										
Percent known																										
Black	5	0	25	0	96	92	9	0	74	0	33	31	70	21	50	58	96	72	0	0	95	84	39	84	52	41
Non-Black	95	100	75	100	3	8	91	100	26	96	67	63	22	79	49	40	3	28	100	100	5	16	60	14	47	58
Percent unknown	0	0	0	0		0	0	0	0	4	0	3	8	0	1	2	1	0	0	0	0	0	1	2	1	1
Mother's Highest Educational Level																										
Percent known																										
Grade school	10	2	32	23	33	42	41	18	29	5	33	30	20	23	33	41	18	39	0	0	22	5	25	18	24	20
High school	87	86	63	55	54	55	47	59	54	82	49	57	61	71	66	59	72	61	86	84	61	86	70	82	64	69
College	3	12	6	23	13	3	12	13	14	18	18	13	19	6	5	0	9	0	14	16	17	9	5	0	12	11
Percent unknown	16	15	28	20	76	26	17	10	31	23	24	13	36	10	79	56	13	34	15	11	83	78	80	78	44	36
Occupational Status of Head of Household‡																										
Percent known																										
High	2	12	4	10	4	0	12	21	5	17	9	11	6	11	5	0	1	0	20	18	5	0	0	10	7	11
Medium	34	44	35	38	17	17	31	33	17	59	27	14	28	45	18	24	16	20	24	30	10	27	35	10	31	33
Low	63	44	61	44	79	83	57	46	77	24	52	75	67	44	77	76	83	80	56	53	85	73	65	80	63	56
Percent unknown	18	18	20	15	76	31	14	9	25	17	22	9	31	9	78	54	15	41	10	9	80	74	83	80	38	36
Children with Preschool Experience																										
Percent known	58	26	39	32	30	0	66	60	55	2	58	40	40	14	29	19	83	30	33	22	4	17	57	14	45	21
Percent unknown	0	0	4	0	0	0	0	0	6	0	0	0	1	0	0	4	1	0	0	0	0	0	1	0	1	0
Baseline WRAT Score																										
Number of children	73	21	75	51	109	41	85	37	81	42	79	31	64	44	90	40	73	21	69	41	76	53	48	37	--	--
$\bar{X}$	30.4	30.5	46.3	45.9	48.1	37.4	44.8	51.8	36.5	46.4	33.3	27.5	18.6	20.3	42.2	38.8	23	18.7	37.0	29.7	20.5	25.2	22.3	18.6	--	--
SD	11.3	11.2	12.1	13.3	12.4	10.8	12.6	13.3	16.2	11.4	12.2	14.2	8.0	10.5	13.1	13.2	11	9.3	10.8	9.3	9.7	13.5	11.1	11.0	--	--

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[*] Kindergarten Data.

[†] First Grade (ef) Data.

[‡] High status occupations corresponded to professionals, semi-professionals, proprietors, managers, and officials; medium status occupations corresponded to clerical, sales, craftsmen, and foremen; low status occupations corresponded to farmers, operatives, service workers, farm laborers, and laborers.

The percent of children with preschool experience ranges among Follow Through groups from 4% for ILM to 83% for EDC. The baseline WRAT scores among Follow Through children ranges from a mean of 18.6 for High/Scope to 37.0 for U. Pittsburgh in Kindergarten and 36.5 for U. Oregon to 48.1 for Bank Street in the First (ef) Grade.

An examination of the demographic profiles (ethnicity, education, and occupation), indicates that the match of Follow Through to Non-Follow Through children within sites was satisfactory for Bank Street, U. Kansas, U. Florida, and U. Pittsburgh, but their WRAT score matches generally are not as satisfactory. The demographic profiles are generally unsatisfactory for U. Arizona and U. Oregon, but U. Arizona's and their comparison NFT's WRAT score matches are almost identical. For other sites, the degree of comparability varied according to the demographic variable considered. For example, High/Scope and Southwest Lab had poor matches in terms of ethnicity but fair matches on the socioeconomic variables. When each Follow Through group is compared to pooled Non-Follow Through children, represented in the last column of Table VI-1, there is some improvement in the extremely poor matches, and some deterioration in the good matches. As described in Chapter VII and in Chapter VIII-E, pooled Non-Follow Through children are used as the comparison group for reasons of economy (fewer computer runs are needed if there is one standard of comparison).

Since each sponsor's model was observed at only one of his several sites, the results obtain essentially for only that site and for the demographic and entering characteristics of that particular sample of children. At this time, it is not known how different demographic and entering characteristics of children in sites other than the observed one might have affected a sponsor's mode of operation, or the results achieved. For this reason, no attempt is made to adjust for initial differences among treatment groups, nor are these initial differences taken into account when sponsor differences are discussed. Because these demographic and entering characteristics could not be made uniform, the findings in this portion of the study cannot be generalized unreservedly. As reported in Chapter VIII, analysis-of-covariance techniques are used to adjust statistically for demographic and entering characteristics; however, such a statistical adjustment does not substitute for experimental control. Further, although it is possible that the variability in child characteristics may affect child outcome results, this was not assessed.

2. Model Diffusion

Knowledge of the diffusion of teaching techniques from Follow Through classrooms to Non-Follow Through classrooms is based primarily on anecdotal accounts. Some data on diffusion are also available from the results of one item on the questionnaire administered to Non-Follow Through teachers in the Spring of 1972: "From what you know about Follow Through programs, are there any aspects of these programs that are similar or identical to what you do in your classroom?" Although a "yes" answer to that question may or may not be due to diffusion, the effect on the study results may be the same.

Of the 72 responses of the Non-Follow Through Teachers, 63 percent were in the categories of "don't know" or "no." In three sites (Bank Street, U. Kansas, and ILM) all the responses were in these categories. However, in all other sites, at least one teacher responded that there was at least some similarity in programs. Sites of sponsors U. Georgia, U. Florida, and Southwest Laboratory stand out in this respect. The primary implication of these findings (based on a very limited amount of data) is that the degree of diffusion between Follow Through and Non-Follow Through varies across sites and is another factor that contributes to inequity among sponsors if on-site (rather than pooled) Non-Follow Through data are used as a standard of comparison. Pooling the data for the NFT classrooms was also a way to avoid such inequities (see last column Table VI-1).

C. Teacher Experience, Training, and Satisfaction

Comparisons were made among sites on Follow-Through teacher experience and training, and teacher satisfaction with the model. Since such factors are major components of each sponsor's model, they should be included in any discussion of sponsor differences. (In this respect, teacher retention rates may be more interesting than years of experience with a particular sponsor's model.) Teacher experience, training, and satisfaction with the model also have a direct relationship to the way in which a sponsor's model is implemented in the classroom, and to this extent, may affect children's test outcomes. Differences among teachers may account for observed differences in classroom processes among sponsors.

The teacher questionnaire (see Appendix D) was administered to teachers in the observed sites in Spring 1972 after observations had been completed. Table VI-2 indicates the degree of teacher satisfaction with their respective models and their opinions of the adequacy of their training, together with the teachers' average number of years of Follow Through experience for each site.

Table VI-2

PERCENTAGES OF RESPONSES ON TEACHER QUESTIONNAIRE BY SPONSOR

Variable/Response	FW	UA	BC	UG	UO	UK	HS	UF	ED	UP	IL	SE
Satisfaction with model												
Would continue to use it	55%	17%	67%	12%	33%	50%	40%	58%	67%	75%	33%	15%
Would alter it somewhat	27	50	25	33	67	50	60	25	25	25	50	27
Would change most of it	18	33	8	25	0	0	0	17	8	0	17	27
Would not use it at all	0	0	0	0	0	0	0	0	0	0	0	0
Teachers not responding or not surveyed	1	0	0	0	0	0	1	0	0	0	0	1
Training received												
None	18	0	0	8	0	0	7	0	9	0	8	0
Not much	9	15	8	8	0	0	0	8	27	8	0	0
Some	55	27	75	33	18	10	33	42	15	67	58	60
A great deal	18	27	17	50	82	90	60	50	18	25	33	40
Teachers not responding or not surveyed	1	0	0	0	1	0	1	0	1	0	0	2
Adequacy of training												
Very	15	0	25	15	58	70	40	50	25	92	33	15
Somewhat	15	12	67	15	42	10	47	50	67	8	58	27
Not adequate	9	25	8	9	0	20	13	0	0	0	8	27
Very inadequate	0	25	0	9	0	0	0	0	8	0	0	0
Teachers not responding or not surveyed	1	1	0	0	0	0	1	0	0	0	0	1
Experience with model												
0 years	0	8	17	0	9	0	0	0	25	0	0	9
1 year	0	58	0	18	27	80	27	33	42	0	9	0
2 years	9	8	25	27	9	10	40	17	33	25	36	18
3 years	15	8	33	36	45	10	27	25	0	75	36	36
4 years	18	8	25	18	9	0	7	8	0	0	18	36
5 years	27	8	0	0	0	0	0	17	0	0	0	0
6 years	0	0	0	0	0	0	0	0	0	0	0	0
Teachers not responding or not surveyed	1	0	0	1	1	0	1	0	0	0	1	1
Total possible teachers	12	12	12	12	12	10	16	12	12	12	12	12
Average years experience in model	3.61	1.75	2.5	2.55	2.18	1.3	2.13	2.58	1.08	2.75	2.61	2.91
Year current sponsor began	68-69	68-69	68-69	68-69	68-69	68-69	68-69	69-70	69-70	69-70	68-69	68-69

VI F5057)7370-350 7-js

In terms of the average years of experience with the model, the U. Arizona, U. Kansas, and EDC sites stand out as having the least experienced teachers, since at least two-thirds had experience of one year or less. The experience for the EDC site was lowest of all, because this particular site began operation one year later than the other sites used for observations. The data seem to indicate that the particular sites of sponsors U. Arizona and U. Kansas may have lower retention rates than sites of other sponsors.

In terms of teacher satisfaction with the model, U. Pittsburgh is the highest, with 75% of the teachers saying they would continue to use the model. On the other hand, 25% or more of the teachers at the sites for U. Arizona, U. Georgia, and Southwest Lab had reservations about future use of the model. It must be noted that teachers used their own standards in answering the questionnaire, and it is possible that teachers in these programs interpreted the question in different ways.

In terms of teacher training, teachers implementing the U. Oregon and U. Kansas models had the greatest amount of training. Although the teachers using the U. Kansas and U. Pittsburgh models felt that their training was very adequate, at least 25% of the teachers at the sites representing Far West, U. Arizona, and EDC indicated they had not had much specific training, and half of the teachers at the U. Arizona site felt that their training was not adequate. However the adequacy of training may have been perceived by the teachers, all sponsors report offering extensive pre-service and in-service training (see Appendix K).

The teacher questionnaire data show that there are major differences among sites in terms of teacher experience, satisfaction, and training. It is not known to what extent these factors affect occurrences in the classroom. However, sites that rate low on teacher experience, satisfaction, and training may not be the best representatives of a sponsor's models.

D. Assessment of Variability

1. Comparisons Over Time

This section presents an assessment, based upon the CCLs, of the degree to which each sponsor's program (i.e., the classroom process variables) changed or "drifted" during a 3-week period between the 2 days of adult-focused observation and the 2 days of child-focused observations. "Process drift" refers to the change in rate at which certain events in a classroom process occurs. It is necessary to know whether or not "drift" has occurred, because an assessment of the stability of the process indicates the degree to which the data can be considered descriptive of the sponsor's classroom process.

In this assessment the distribution of each CCL variable in the first 2 days of observation (adult-focused) was compared with its distribution in the second 2 days of observation (child-focused) approximately 3 weeks later. This was done separately for each sponsor and for each grade level. (FMO variables could not be compared over the 3-week period because of the difference in the focus of observation employed at the two times.) In comparing the distributions of each CCL variable between the first and second observation periods, χ^2 (Rao, 1965) and CATANOVA[*] (Light and Margolin, 1971) techniques were used with the CCLs as the unit of analysis. The analysis was performed for each grade level-sponsor combination. Results of this analysis[†] indicate that the differences between the two observation periods are not major for any sponsors' model except that of U. Florida. For U. Florida, large differences were found for six variables in the first grade and eleven variables in the mixed class. There also appears to be a large difference on the CCL variables between the adult-focused and child-focused observations for the U. Florida mixed classroom. For example, the mean for number of adults in the classroom (CCL-53) was 1.94 for the adult-focus observations and 3.07 for the child-focus observation. Differences on this variable may help to explain differences on other variables, such as adult with small group (i.e., there could not be as many adults with small groups if there are not as many adults present).

Tables displaying the stability between first and second observation periods on a few selected CCL variables (CCL-4,-5, and -41) are found in Appendix O. Variables CCL-4 and CCL-5 measure the rate at which the two major academic activities--arithmetic and reading, respectively--occur, while CCL-41 measures how often a teacher is found with a small group in any activity.

The analysis of the educational processes, as described by the CCL variables, reveal a remarkable stability over time between the adult-focused observation days and the child-focused observation days. Such stability may be due to combining the data over classrooms and the fact that there were two days of observation (rather than only one day) for each focus.

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[*] See Appendix R for a brief description of the CATANOVA technique.

[†] See Appendix O for details of the analysis.

2. Comparisons of Classrooms and Grades

The classroom comparisons are intended to assess the extent to which the educational processes are uniform across classrooms. This was done by comparing the distribution of CCL variables among classrooms within each grade by sponsor, and between grades within each sponsor. Non-Follow Through classrooms were not included in this analysis.

The reason for assessing differences among classrooms is that the results determine the statistical procedures to be employed in terms of the choice of the unit of analysis. For example, if it is found that classrooms have a common distribution on CCL variables, their data can be pooled in later analyses. If not, the procedure for merging the classroom data to obtain a characterization of a sponsor's model must be justified on a heuristic basis. The comparisons among grades are carried out for the same purpose--i.e., to establish the basis for subsequent statistical procedures.

For the comparison of CCL distributions, χ^2 and CATANOVA techniques were employed. For the comparison of classrooms these procedures were carried out within each sponsor and grade for each CCL variable. For the comparison of different grades, the procedures were carried out for each sponsor. In both cases the COP served as the unit of analysis, and adult-focused and child-focused data were pooled. In the comparison of grades, the COPs for all classrooms at a given grade were pooled. Appendix O gives a description of the partition of values for each CCL variable.

Some 30% of all analyses of the classroom comparisons resulted in differences that were significant for both the χ^2 and CATANOVA χ^2 statistics at the .001 level. When the more stringent condition of requiring the R^2 statistic to be greater than or equal to 0.08 was used, the percentage dropped to 21%. Even when some allowance was made for the non-independence of the tests within a given sponsor and grades, the number of differences found was substantial.

Table VI-3 presents the number of CCL variables for each sponsor and grade level where the R^2 statistic reached or exceeded 0.08.[*] There are substantial differences among sponsors. The classrooms in the Bank Street model across all grade levels and the Third-Grade

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[*] This criterion was determined after an examination of the data indicated that an $R^2 \geq 0.08$ seemed appropriate.

Table VI-3

NUMBER OF CCL VARIABLES[*] WHERE MAJOR DIFFERENCES[†] WERE FOUND

a. Differences Among Classrooms Within Sponsor

Grade Level/Stream	FW	UF	BC	UG	UO	UK	HS	UF	ED	UP	IL	SE
K	15					5	5		6	3	9	11
1 (ek, ef)	3	12	25	8	8	6	16	6	15	15	16	2
2 (ek, ef)	8	8	24	16	5	12	8	7	17	6	17	3
3 (ef)		12	25	5	10		27	17				

b. Differences Among Grade Levels Within Sponsor

FW	UF	BC	UG	UO	UK	HS	UF	ED	UP	IL	SE
3	2	1	1	14	4	1	2	1	3	6	14

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[*] Total number of CCL variables = 53.

[†] $R^2 \geq .08$.

classrooms of High/Scope had differences on considerably more variables than other sponsor/grade-level combinations. Of the major differences found, 24% were in variables related to type or number of activities, 15% were in variables related to materials used, and the remaining 61% were in variables related to classroom groupings of adults and children. These percentages are proportionate to the percentage of variables in the various groups; that is, the differences did not cluster around a particular variable type.

In terms of grade differences, although almost 50% of the comparisons resulted in differences that were significant for both the χ^2 and CATANOVA χ^2 statistic at the 0.001 level, only 8% of the comparisons had a CATANOVA R^2 that was at least 0.08. Note that, in comparing grades, all the COPs for a sponsor were included; consequently, the χ^2 tests were very sensitive to differences. The entries in Table VI-3b present the number of CCL variables for each sponsor where the R^2 statistic exceeded 0.08. The grade levels in the U. Oregon and Southwest Lab models exhibited differences on far more variables than the other models. For U. Oregon,* most of the variables where differences were found are related to groups of adults and children. This difference may be a consequence of the difference in the child-to-adult ratio. Since there are fewer adults in the Third Grade, adults will be found less often with small groups of children. The grade levels for Southwest Lab exhibit a similar pattern, with Kindergarten classrooms having a much lower child-to-adult ratio than the upper two grade levels. This is in part a verification of Southwest Lab's statement that grades should be different (see Appendix B).

Figures VI-1 through 7 illustrate differences among grades and differences within grades. Each vertical line on a grid represents a grade level for a particular sponsor. Each dot on a line represents a classroom mean for the particular variable. The "o" (for "origin") to the right of each vertical line represents the grade level mean for the variable. Where differences were found among classrooms ($R^2 \geq 0.08$) on CCL variables, a triangle ▲ appears at the top of the vertical line. Similarly the presence of differences among grade levels is denoted by a square ■ below the sponsor designated at the bottom of the figure. The grade level means for Non-Follow Through are included in the figures to allow for comparison with the sponsor means. The CCL variables used for these figures are:

- Number of children enrolled (OSF-10)
- Child-to-adult ratio (inverse of OSF-15)
- Arithmetic, numbers, math (CCL-4)
- Reading, alphabet, language development (CCL-5)
- Teacher with one child in any activity (CCL-39)
- Teacher with small group in any activity (CCL-41)
- Teacher with large group in any activity (CCL-42).

Each of the two specific academic activity variables (CCL-4, math, and and CCL-5, reading) takes on the value of either 0 or 1 for each COP, so that the mean value represents the percentage of COPs in which the activity was taking place.

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*See Figure VI-2.

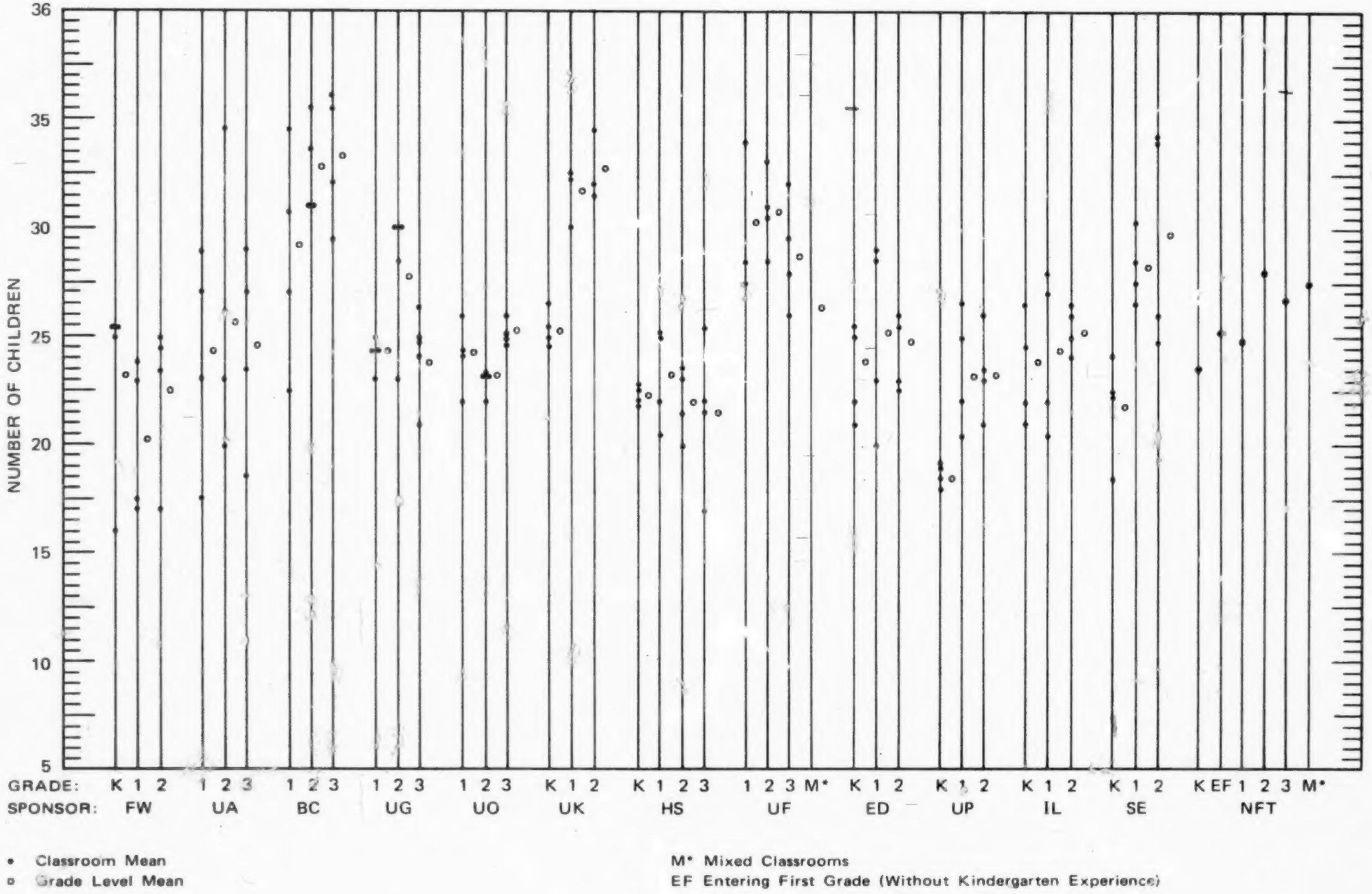

FIGURE VI-1 ENROLLMENT (OSF 10)

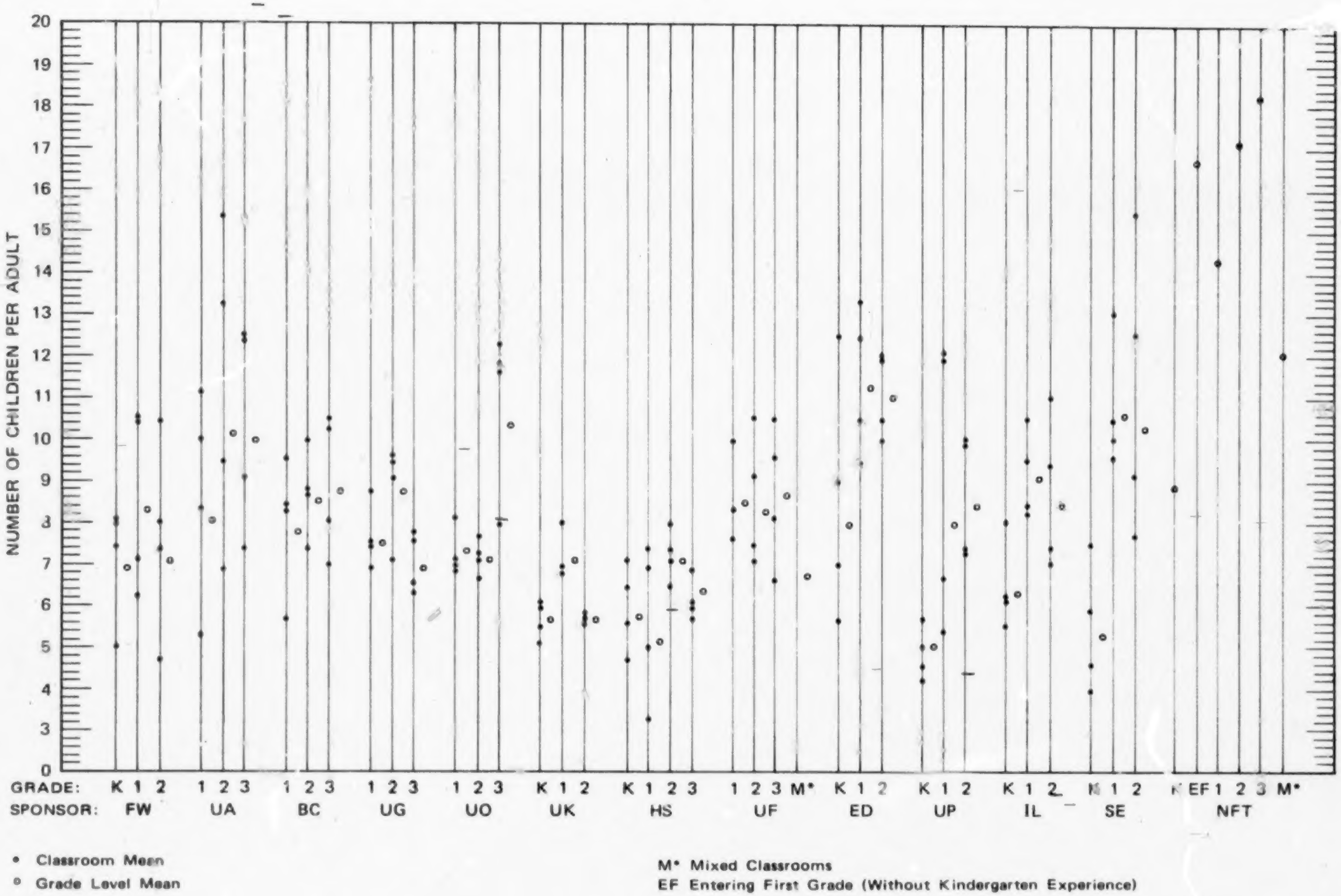

FIGURE VI-2 RECIPROCAL OF ADULT TO CHILD RATIO (OSF 15)

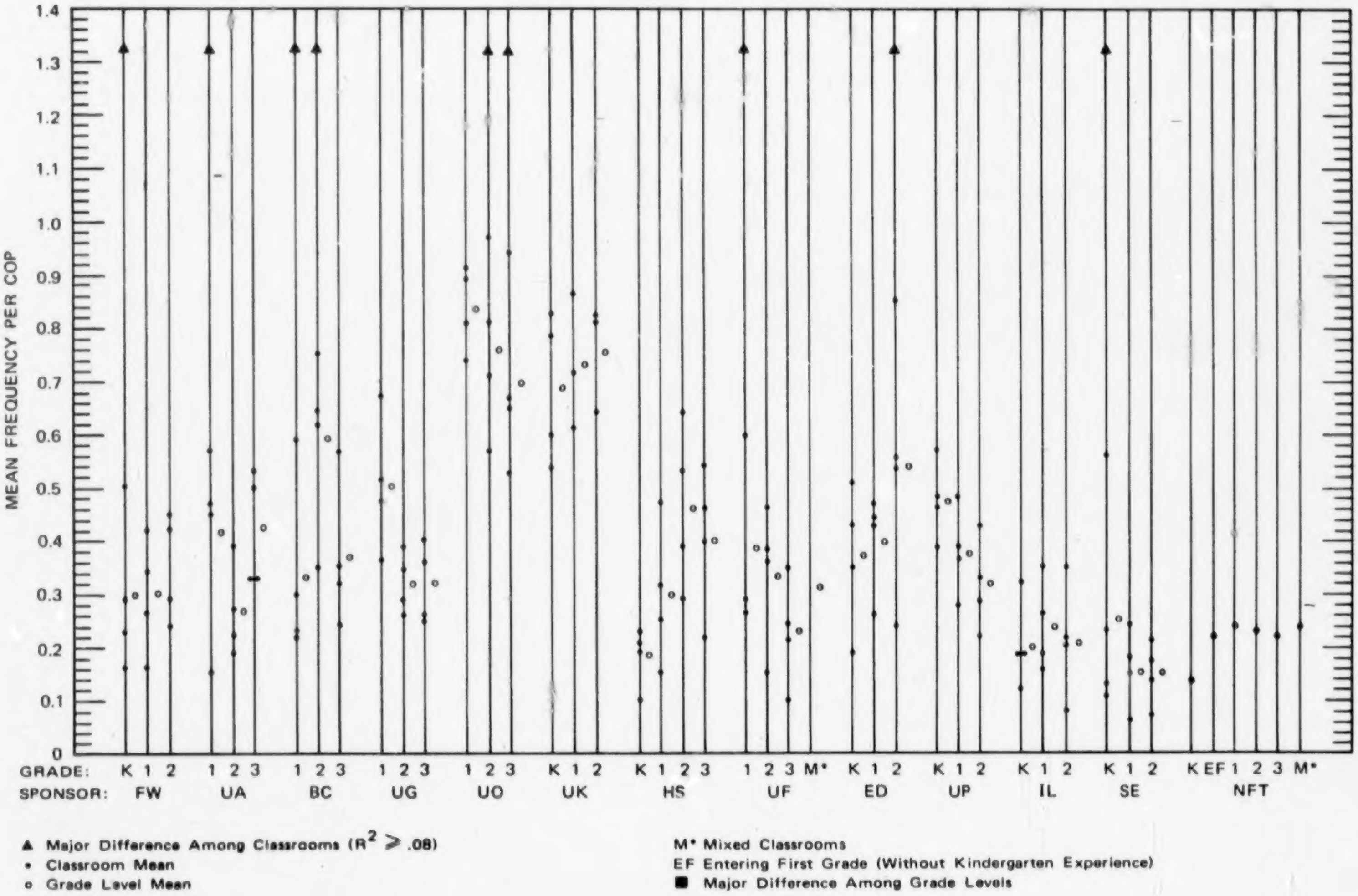

FIGURE VI-3 ARITHMETIC, NUMBERS, MATH (CCL 4)

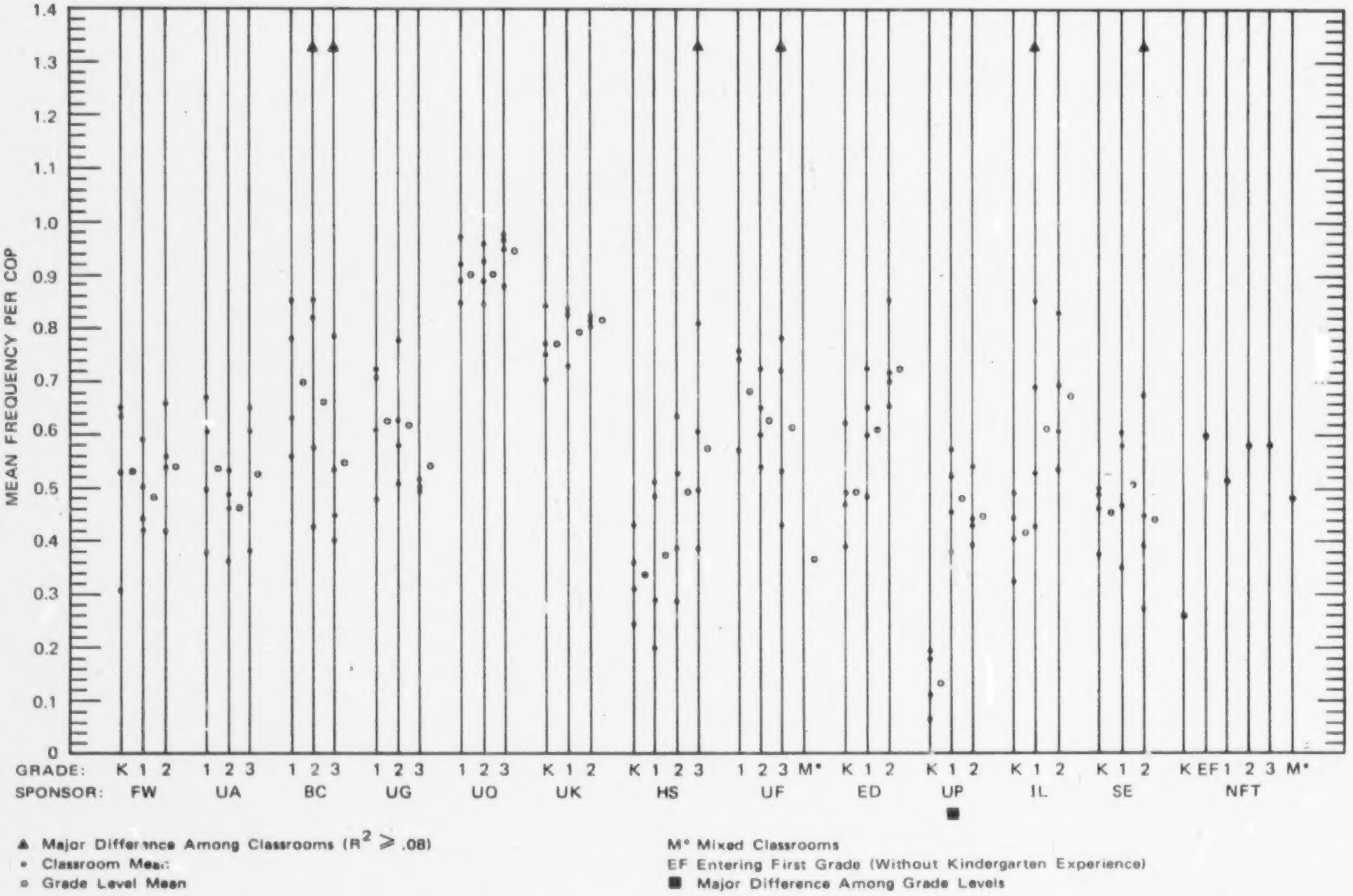

FIGURE VI-4 READING, ALPHABET, LANGUAGE DEVELOPMENT (CCL 5)

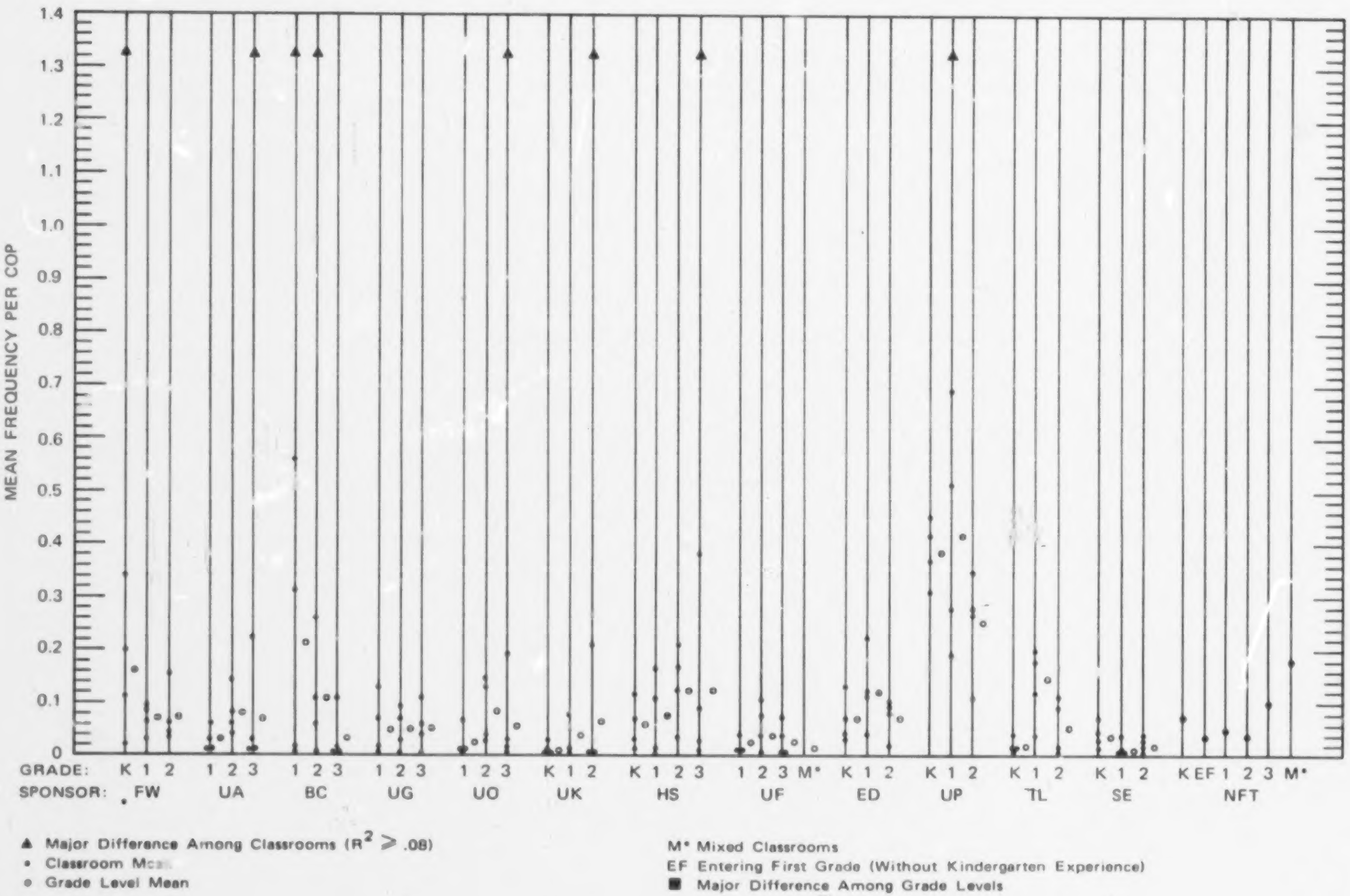

FIGURE VI-5 TEACHER WITH ONE CHILD IN ANY ACTIVITY (CCL 39)

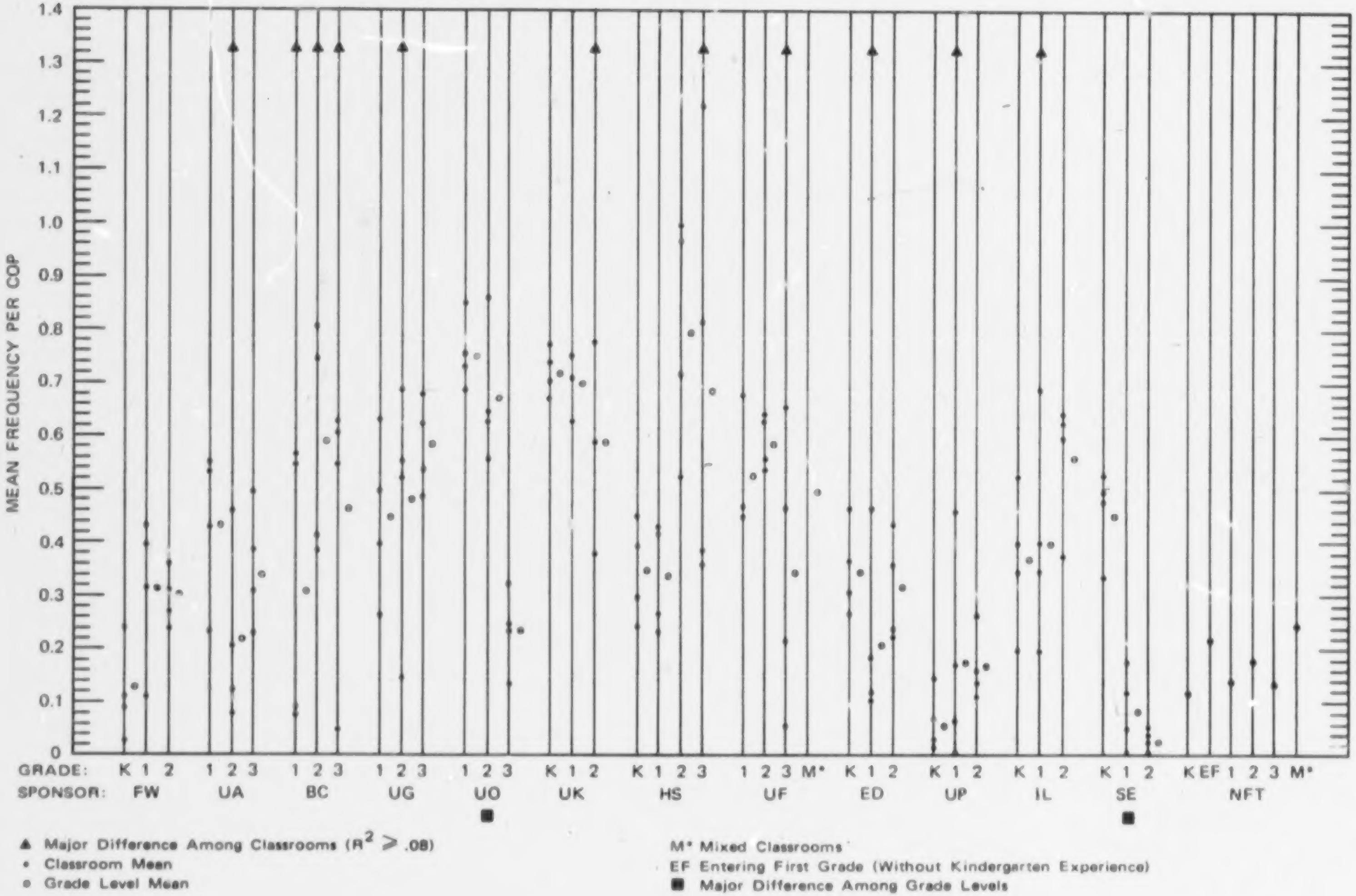

FIGURE VI-6 TEACHER WITH SMALL GROUP IN ANY ACTIVITY (CCL 41)

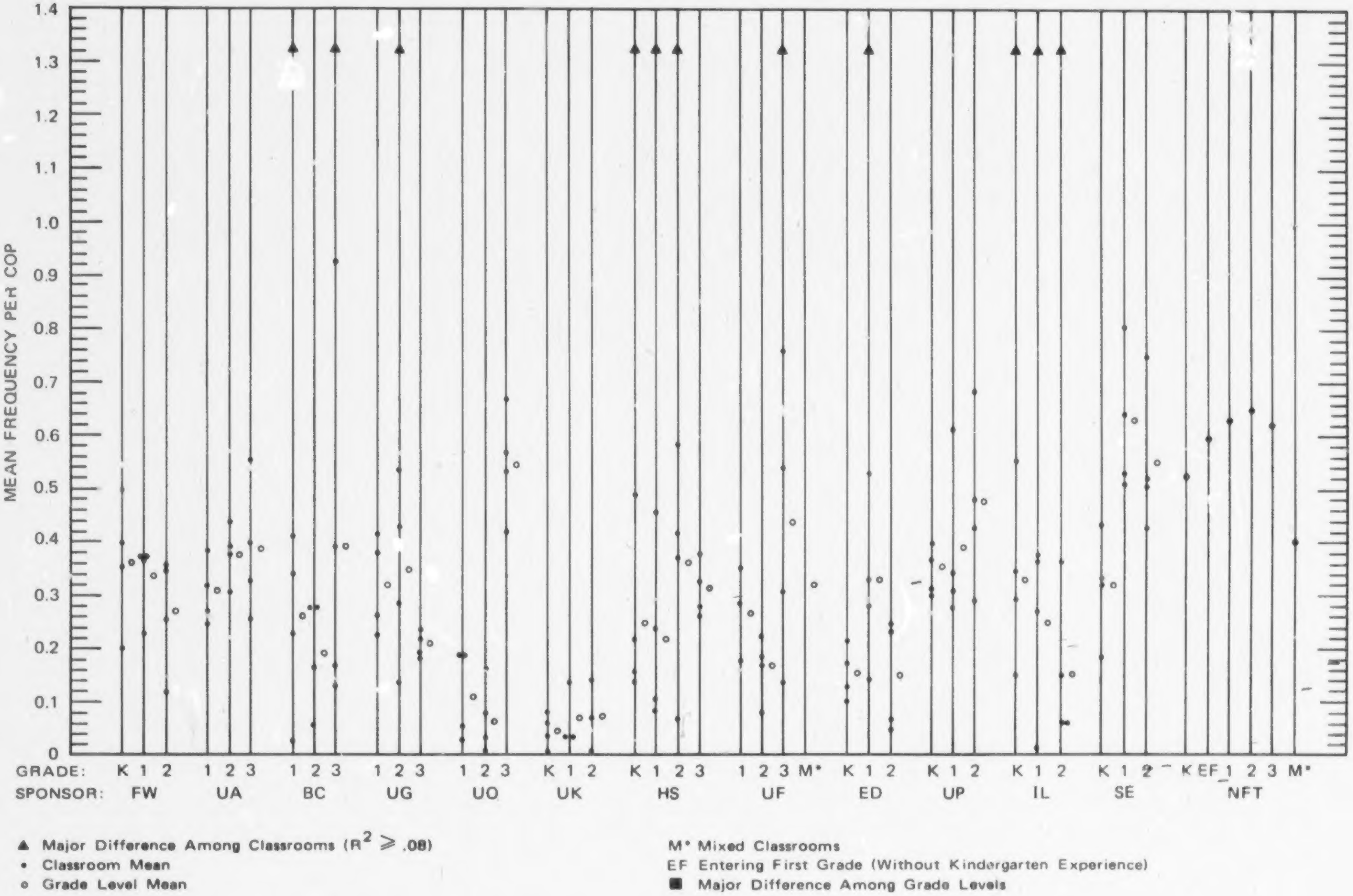

FIGURE VI-7 TEACHER WITH LARGE GROUP IN ANY ACTIVITY (CCL 42)

The variables that reflect the teacher's activity can have the values 0 and 1 only for the classrooms where one teacher was designated. The classrooms that had more than one teacher were in the Second and Third Grade of the High/Scope model and the Kindergarten of the Southwest Lab model. With these exceptions, the value taken on by each variable can be interpreted as the percentage of CCLs in which the teacher was found in a specified grouping of children.

These figures not only illustrate the variability among classrooms and grade levels, but also reveal that in some cases the magnitude of within-sponsor variability is small when placed in the context of differences among sponsors.* For example, in spite of the within-sponsor variability, the differences on the frequency of math and reading activities between U. Oregon and U. Kansas and the remainder of the sponsors are very evident.

E. The Reliability and Uniformity of the Observation Procedure

Although there are several ways to examine the reliability of an observation instrument (Medley and Mitzel, 1963; Cronbach, et al., 1972; and Kalter, 1971), all of them have limitations. The major problem in reliability assessments is that we do not yet know how great differences between observers can be and still provide useful data. This problem remains unresolved.

The previous SRI reliability study (Stallings, Baker and Steinmetz, 1972) used paired observers and computed the reliability of the variables they recorded. This was done for the observation variables overall, rather than separately by individual sites. Reliability in this study denoted only the degree to which the codes recorded by the trainee agreed with the codes recorded by the SRI trainer.

Information on the reliability and uniformity of the observation procedure was obtained from four sources:

- The Observation Data: As a check on the observation procedure, the number of COPs completed per day and the number of frames per FMO for observers were compared. These rates (COP/day; frames/FMO) provided indirect measures of how smoothly and uniformly the observation procedures were carried out.

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*See Chapter VIII for a comparison of sponsors.

- The Weekly Roster Lists: These lists were returned by observers at the end of each week of observation. They identify the date, school, classroom, and focus persons for each observation. They also contain any observer comments about problems during the observation. The comments are useful in identifying possible data anomalies, or atypical circumstances affecting the collected observation data.
- The Observers' Journals: The observers' journals were distributed at the end of the observers' training sessions and were collected after all observations were completed. The purpose of the journals was to obtain feedback from the observers that might help in data interpretation, in future training, or in improving the observation instrument. The journals contained open-ended questions regarding observation procedures, administrative procedures, and training, and observers were encouraged to respond freely to these questions.
- The Reliability Data: In order to measure the reliability of the classroom observation data, SRI trainers were paired with trainees and the codes compared. Based on approximately 8 FMOs per site at 12 sites, data from 31 such pairings were obtained and examined.

The data from each of these sources are examined, and the summary and conclusions are contained at the end of the respective sections that follow.

1. The Observation Data

The average number of COPs completed per day and the average number of frames per FMO are tabulated by observers (see Appendix N). Great variations in the amount of data recorded by observers could indicate problems in the data collection that might differentially affect the description of sponsors' programs.

The average number of COPs per day was found to be uniform across observers on the child-focus data because the observation procedure specified 16 COPs per day. The average number of COPs per day does vary moderately across observers and sites on the adult focus data. The averages for Far West Lab, EDC, and U. Pittsburgh are moderately lower than the averages for the other sponsors.

The average number of FMO frames completed by observers range from 72 to 92[*] on child focus and 60 to 75 on adult focus within the selected sponsors. No particular sponsor appears to have exceptionally high or low values on this rate of observation. The difference between the rate for adult focus and child focus is due to the omission of frames with a simultaneous code (S) on the adult focus data.

2. The Weekly Rosters

An examination of comments made by observers on the weekly rosters provides some information on the sources of differences in the rate of observation (see Appendix N for examples). As far as could be determined from the rosters, the variation in observation rates among observers could be attributed to chance--the focus person (child or adult) left the classroom during the observation, or some other unusual circumstances occurred. These examples were found in the weekly roster lists: the teacher left for in-service training so the Fourth Grade joined the class; the video equipment broke down; two focus children slept all afternoon; aide and volunteers are in the room only in the afternoon; thunderstorm interrupted lighting and heat in classroom; tornado warning; blizzard; fire.

The conclusion reached from examination of these data is that site-to-site variations in the number of COPs per observer probably were not related to sponsors' processes. Instead, differences were primarily due to limitations imposed by the teachers' duties and, in some cases, to unusual circumstances.

3. The Observers' Journals

The answers to the observer journal questions that were returned by 33 observers (89%), are presented in Appendix G. While there is considerable variation in type and number of comments, it is fair to conclude that observers do not differ importantly by site in terms of their perceptions of the observation experience. At least one observer at every site except U. Florida and Southwest Lab reported difficulty with certain codes. The most frequently mentioned were Code 5 ("Comments"), Code 8 ("Productive Statement"), Code 4 ("Instruction") and Code S ("Simultaneous").

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[*] Frequencies greater than 76 are possible when a simultaneous frame is followed by repeats (see Chapter II-10).

The observers felt that the "Simultaneous" (S) code was particularly difficult to use, since the rules for its use differed in the adult-focus and the child-focus observations.[1] In the adult-focus observations, the simultaneous code was to be used only to record inattention of the child evident at the same time a group activity involving the adult focus person was in process. However, because this code was used by observers in ways that were inconsistent with this prescribed way, the simultaneous code was dropped from the adult-focus analysis tapes. In the child-focus observations, the simultaneous code indicated that the child was attending to something and what that something was; e.g., teacher lecturing and child listening (TL 4 followed by S CT 12).

4. The Reliability Data

The reliability data are examined for two purposes:

(1) To assess overall reliability in order to identify the codes (and thus, the variables) that may need to be interpreted with caution;

(2) To compare the reliability of observers among sites.

Data from the eight FMOs were examined, using three *Who* code categories, thirteen *What* codes and seventeen *How* codes. Although the instructions were provided, it seems that in two cases the SRI trainer and the site observer did not actually record the same event. For example, in one situation, the SRI trainer recorded the *teacher*, who was observing the group, thus showing a high proportion of TL12; while the trainee recorded the *aide* who was instructing the group, thus showing a high proportion of AL 4. Both trainer and trainee recorded activities that actually occurred, but the focus was different--thereby reducing reliability. If both observers had reported data over the whole 3 days rather than for only 2 hours, and since the specifications required the observer to record at least one aide instructing children, such differences would probably have disappeared.

To assess coding reliability, the proportion of frames that contained a particular code was recorded for each trainer and trainee. From the proportions, p for a given trainer and q for a given observer on a given code, two measures were computed:

(1) The difference q-p and

(2) The percent agreement: $100 \times \frac{\min(q,p)}{\max(q,p)}$[*] .

Appendix N-2 contains the values of these two measures for each code and trainer/observer pair.

a. Overall Reliability

Tables VI-4 through VI-6 show the overall percentage reliability of the codes separately in terms of their high and low frequency. As can be seen from Table VI-4, the frequently used Who codes are above 80% reliable for this sample. Table VI-5 indicates that Code 10--No response--which has low frequency and below 60% reliability, should be interpreted with caution. It must be noted that reliability for low-frequency variables is difficult to interpret because if one observer records an event four times and the other only two times, the agreement is only 50%, even though the actual difference is only two occurrences. Higher-frequency variables can tolerate a difference of two occurrences and still show a high percentage of agreement. Code 2 (Open-ended questions) was recorded infrequently and has a low (percent) agreement. However, this code as it enters in the factor analysis has been useful in discriminating sponsors in the predicted directions (see Chapter VII). Here, then, the validity of the code and the reliability of the code are in conflict.

Table VI-6 indicates that the most frequently used How codes are 70% reliable. The infrequent G (Guide), and R (Reason), were summed with Q when used with the positive corrective feedback variable. It was recognized that there was a great deal of overlap between these variables and that distinguishing between them was both difficult and unnecessary. Since the general intent was the same, they were combined.

For the most part, How codes in 91-100% agreement represent low-occurrence variables that by chance did not occur often during the short paired observation period.[†] Thus these are also questionable.

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[*] When p = 0 and q = 0, the percent agreement is assigned a value of 100.

[†] A study designed to control the occurrence of all codes and examine "confusability" as well as reliability of observers.

Table VI-4

PERCENT AGREEMENT BETWEEN TRAINER/OBSERVER (PAIRED OBSERVERS) IN RECORDED CLASSROOM OBSERVATION VARIABLES*

Who Codes

Percent Agreement	Least Frequent Code 0-30%	Most Frequent Code 30-90%	Total No. of Codes
91-100		Adult	1
81-90		Child	1
71-80	Other		1
61-70			
51-60			
41-50			
		TOTAL	3

---

[*] Least frequent and most frequent groups were determined by examining range and distribution. Natural break points in the data were used for grouping.

Rare instances where one observer coded one event and the other observer coded none were not included when computing this table. For this information, see Appendix N-2.

Table VI-5

PERCENT AGREEMENT BETWEEN TRAINER/OBSERVER (PAIRED OBSERVERS) IN RECORDED CLASSROOM OBSERVATION VARIABLES*

What Codes

Percent Agreement	Least Frequent Code (0-5%)	Medium Frequent Code (5-15%)	Most Frequent Code (15-30%)	Total No. of Codes
91-100			3	1
81-90		10,4,5 9		4
71-80	6,11	1,7,12		5
61-70	2	8		2
51-60	10			1
41-50				
			TOTAL	13

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[*] Least frequent and most frequent groups were determined by examining range and distribution. Natural break points in the data were used for grouping.

Rare instances where one observer coded one event and the other observer coded none were not included when computing this table. For this information, see Appendix N-2.

Table VI-6

PERCENT AGREEMENT BETWEEN TRAINER/OBSERVER (PAIRED OBSERVERS) IN RECORDED CLASSROOM OBSERVATION VARIABLES*

How Codes

Percent Agreement	Least Frequent Code (0-5%)	Medium Frequent Code (5-12%)	Most Frequent Code (12-20%)	Total No. of Codes
91-100†	C,P,S,I			4
81-90		X	A,Q	3
71-80		Sy	NV	2
61-70	+,-,T,L 0			5
51-60	G,R,F			3
41-50				
			TOTAL	17

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[*] Least frequent and most frequent groups were determined by examining range and distribution. Natural break points in the data were used for grouping.

Rare instances where one observer coded one event and the other observer coded none were not included when computing this table. For this information, see Appendix N-2.

[†] In 22 out of 48 possibilities, neither trainer nor observer at the 12 sites recorded C, P, S, I codes. Such instances were recorded as 100 percent agreement.

b. Comparison of Between-Site Reliability

An examination of observer performance by site (see Tables VI-7 and VI-8) indicates that the trainees used to observe EDC were somewhat less reliable than were the observers for other sponsors. Twelve out of the 33 codes show below 70% agreement. However, in the analysis of variables which describe sponsor differences (see Chapter VII), EDC is clearly differentiated from other sponsors on dimensions which are of importance to the EDC model. Close examination of the results revealed that the "low reliability" feedback codes (Codes 6, 7, 9, and Code 12--Observing) presented in Table VI-7, are not of central importance to the EDC program. Other codes that represent affective elements important to the EDC model were found to be acceptably reliable (see Table VI-8).

Reliability must be considered individually for each model, and must be considered in terms of the importance of specific components to the model. If the codes representative of important components of a particular model are in question, then the data should not be used in the assessment of implementation. Therefore, careful examination of the reliability findings and their effect upon the data is essential.

Pioneering research, such as that involved in the Classroom Observation study, clearly requires new approaches to dealing with the issue of data reliability. Kalter's (1971) approach was to utilize video tapes of classroom situations which were coded by a pair of observers. Reliability figures (i.e., agreement) then were computed for the codes and sequences. A similar study is presently being conducted at SRI to examine the reliability and "confusability" of codes recorded by observers in Spring 1973.

F. Conclusions

The aim of this chapter is to describe the context in which the classroom observation study took place and to examine their consequences for the analyses as described in Chapters VII-IX of this report.

Perhaps the major conclusion of this chapter is that the array of intervening factors that may influence the description of classroom processes differentially across sites cannot be dismissed. These include the

- Demographic and entering characteristics of children
- Reliability and uniformity of the observation procedure
- Teacher experience, training, and satisfaction.

Table VI-7

PERCENT AGREEMENT OF OBSERVERS WITH TRAINER BY SITE[*]

	Who			What Codes												
Site	Adult	Child	Other	1 (NO Q)	1Q or 1QSY	2	3	4	5	6	7	8	9	10	11	12
Far West Lab	92	91	100	79	81	46	92	96	82	87	85	97	71	60	100	69
U. Arizona	88	72	87	69	67	68	91	96	66	71	76	68	100	17	100	61
Bank Street	93	89	100	67	84	100	99	92	85	86	39	30	83	12	100	72
U. Georgia	98	97	100	81	97	49	87	92	99	85	47	82	92	57	100	86
U. Oregon	83	75	100	97	89	80	89	77	91	84	70	34	70	95	100	93
U. Kansas	98	95	100	75	84	55	99	86	97	88	100	75	85	59	100	97
High/Scope	99	94	46	70	75	35	90	95	92	98	87	65	92	56	100	77
U. Florida	88	79	100	88	100	79	75	99	55	77	82	50	99	43	6	46
EDC	86	68	73	71	96	67	97	80	70	55	59	24	58	100	71	50
U. Pittsburgh	95	86	64	94	97	100	99	79	75	80	70	57	90	71	100	61
ILM	99	84	66	71	77	99	91	76	74	34	76	98	64	96	100	84
Southwest Lab	97	99	86	93	95	85	97	99	93	85	69	95	81	17	100	82

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[*] 100% agreement indicates that neither trainer nor trainee recorded the code.

Table VI-8

PERCENT AGREEMENT OF OBSERVERS WITH TRAINER BY SITE*

Site	$\overline{NV}$	$\overline{X}$	How Codes														
			+	-	A	T	G	R	C	Q	F	P	L	S	I	Sy	O
Far West Lab	81	86	44	98	74	100	100	100	100	79	100	100	67	100	100	78	76
U. Arizona	65	79	63	25	57	82	86	53	100	73	92	100	72	100	63	81	77
Bank Street	37	88	79	100	89	100	100	100	100	84	49	100	100	100	100	54	100
U. Georgia	99	99	51	100	99	100	94	71	100	96	100	100	98	100	100	53	100
U. Oregon	66	83	52	100	66	100	58	100	100	89	98	98	19	100	94	57	100
U. Kansas	79	92	51	100	91	23	51	100	100	86	100	100	100	100	100	82	5
High/Scope	73	59	100	28	99	100	36	29	100	73	13	100	100	100	100	86	100
U. Florida	79	88	82	43	59	53	10	60	100	96	16	100	100	100	100	80	100
EDC	85	83	83	100	71	71	18	58	100	99	35	100	18	100	100	60	87
U. Pittsburgh	81	92	22	100	88	46	66	32	100	96	26	97	100	100	100	91	69
ILM	81	79	86	100	95	23	86	29	60	77	78	100	14	100	100	57	100
Southwest Lab	81	75	97	100	93	26	51	40	100	86	15	100	100	100	100	92	18

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*100% agreement indicates that neither trainer nor trainee recorded the code.

The differences among groups in demographic and entering characteristics may have the most serious impact on interpreting the results of the study. Statistical procedures were used to "adjust" for the effects of such differences, but the adjustments are only approximations.

Although it is not known to what extent the major differences among sites in teacher experience, satisfaction, and training affect occurrences in the classroom, results from sites that rate low on these factors should be treated with caution, since these classrooms may not be the best representatives of their models.

The investigation of the sources of variability within each sponsor's program indicated that the major source is differences among classrooms. This is not surprising, since the CCL variables used were not selected to assess components specific to each sponsors. Thus, it is difficult to talk about a sponsor's "typical" classroom since the statistics computed across classrooms represent some mixture of classroom processes.

In regard to the range of classroom behavior on the CCLs, the differences in the educational processes across time and across grade levels are not substantial for most sponsors. Some sponsors' programs, such as Far West Lab, Bank Street, U. Georgia, High/Scope, EDC, and Southwest Lab, are based on a developmental theory of education. For an adequate description of these programs, it is essential to investigate how the developmental theory is implemented in the classroom. Since the FMO variables may be more useful in this effort that CCL variables, the grade differences are examined further, in Chapter VII. As presented in Chapter VII, the classroom serves as the unit of analysis and these analyses are carried out disregarding grade level differences for each sponsor. In addition, further analyses of grade differences within sponsor are made. The results from the overall analysis then must be tempered by the noted effects of grade differences. The analysis was carried out by grade because the outcome scores are not comparable across grades, as described in Chapter VIII.

Chapter VII

CLASSROOM PROCESSES

A. Introduction

The primary purpose of this chapter is to describe and assess program implementation in the classrooms of twelve sponsors. Implementation is defined as being able to affect teacher and child behavior so that what occurs in the classroom reflects the sponsor's theory. In addition, Follow Through programs will be contrasted with Non-Follow Through programs and relationships between processes and child behavioral outcomes will be explored.

The study of implementation is carried out in four phases: First, each model is described from a theoretical point of view.[*] Second, based upon observations, the day of a child at the sponsor's site is presented. The description of what occurred is constructed by examining each sponsor on all variables and using multiple range tests for difference in ranks (Newman/Keuls technique described by Winer, 1962, p. 86). In addition, the frequency of activities and grouping patterns for each grade at a site are examined. The instruction and feedback system is displayed for each model without regard for sponsor rank. Using these procedures, a reasonably good picture can be drawn of what is occurring in sponsor classrooms.

Third, to examine how the observations of the classroom conform to the sponsor specifications, an implementation score is figured. Based on the sponsors' stated theories, classroom methodologies and behavioral goals, and the SRI staff's acquaintance with sponsors, a list of variables was selected that would most clearly reveal degree of implementation. For each of the twelve sponsors, several variables were selected that would be expected to occur frequently (or rarely) in his ideal model classrooms.* Using the sponsor-specific variables, each model is then compared with its Non-Follow Through comparison. This procedure is followed in order to determine whether a sponsor's model classrooms actually do differ from the traditional classroom.

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[*] The description was prepared by SRI staff and reviewed by Follow Through sponsors.

Fourth, factor analysis is also used to assess implementation. Nine factors were constructed using 67 variables. To illustrate sponsor differences, profiles were constructed for each sponsor on each factor.

In previous SRI operation analyses, the classroom was the unit of interest, and the frequency of behavioral variable occurrences was summed over the total observation period. Differences among sponsors were examined over all the observed classrooms without regard to grade level, so that an overall atmosphere or gestalt resulting from the underlying educational philosophy could be captured and assessed. The grouping of all classrooms resulted in variable distributions based on enough cases so that classical statistical tests of distribution parameters could be carried out without excessive violation of the assumptions basic to such tests. In addition, the 1972 data obtained by grouping all classrooms at one site are compared with site data separated by grade and by activity in order to discover the degree to which merging data distorts findings. The question of analysis replicability is also examined by comparing data collected in Spring 1971 with data collected in Spring 1972.

In addition to the issue of implementation, there is an interest in the effectiveness of Follow Through as a publicly funded national program. Therefore, the question: "Has Follow Through as a program per se made a desirable difference in the classrooms?" is also addressed in this chapter. Means and standard deviation are compared on all variables.

Finally, an exploratory effort is made to investigate the relationship between desired behavioral child outcomes and classroom processes. Selected variables, such as "Child asking question (FMO18)" or "Child cooperating with other children (FMO58)" from the child-focused tape were correlated with process variables from the adult-focused tape.

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*Although the U. Florida model is not a classroom model and directs its energies toward the home, a list of CO variables was nevertheless constructed on the basis of U. Florida rating of variables as shown in Appendix B. While the sponsor does not directly train teachers to implement certain classroom processes, he does share some educational philosophy and expresses preferences for the way teachers work with children. In addition, the parent educators with whom he works participate in Head Start Center activities and share these theories.

B. Implementation at One Site

As mentioned above, several methods are used to investigate implementation. They are discussed in detail in the sections that follow.

1. Procedures Used to Examine Sponsor Theory and Practice

From the master tapes containing all the COI information, a new data tape was generated containing all occurrences of the variables listed in Appendix A throughout the total sample of 220 classrooms. In this phase of the analysis program, frequency rates of variable occurrence for each classroom were developed by first dividing total observed occurrences over the observation period by the appropriate unit of observation (i.e., OSF variables per day, CCL variables per COP, and FMO variables per frame). These classroom mean frequencies and standard deviations were then grouped by sponsor. This information is summarized and displayed in Appendix L.

The method selected to test for sponsor differences (i.e., for planned variation in Follow Through) was the analysis of variance. This method was used although inspection of the histogram distributions of classroom scores within a sponsor's model revealed that, on many of the variables, the assumptions of normality and to a lesser extent of homogeneity of variance appropriate to the F test were not satisfied. For most sponsors on most variables, the distribution was J-shaped with the mode at zero. (This appeared to apply especially to the behavior variables that a given sponsor was likely to suppress in implementing his model--such as independent activities in one of the heavily structured reinforcement models.) Studies have shown (Norton, 1953; Glass et al., 1972), however, that nonnormality of distribution does not affect the F test extensively and that the J distribution yields results remarkably similar to the ideal normal. In the same studies it has been reported that, even in cases where both normality and homogeneity assumptions were violated, the alpha error level was increased only slightly. Therefore, in the present study, obtained probabilities of 0.05 may actually be as high as 0.08, and obtained values of <0.01 may be as high as 0.03. Because the variables selected for comparison in this study were so sensitive to process variation, most of the sponsor differences yielded chance probability values <0.001. Thus, although for some variables the error level may be slightly higher than reported, differences reported as significant are almost certain to be so, even after allowances are made for nonnormality of the distributions. The F-test results appear in Appendix L.

In comparing "treatment" (i.e., sponsor process) means on a given performance measure by using the analysis of variance, it should be remembered that a significant F test indicates only that a difference existed. Unless there are only two treatments, the F test yields little information regarding the nature of the difference. In the present case, a highly significant F signifies only that the twelve sponsor processes were not the same on the performance measure examined. It cannot indicate that each process differed from every other process, that one process differed from all the others, or that half of them were essentially alike and differed from the other half, also essentially alike. To obtain such information, other a posteriori tests have been developed. One of the most useful in probing the nature of differences in treatment means, following a significant overall F, is the range test using a q statistic. The particular method used here is known as the Newman/Keuls procedure (see Winer, 1962). In brief, this procedure uses a matrix of differences between treatment means to enable a q test of the differences between all pairs of means. Several alternative procedures could have been used. The Newman/Keuls was selected because it offers an acceptable balance between power and conservatism. It keeps the level of significance equal to alpha for all ordered pairs of treatment comparisons, however many rank steps apart they may be. By using a harmonic mean number of classrooms, the procedure could be used in comparing the unequal sample sizes contained in this study (one sponsor had ten experimental classrooms, another had sixteen, and all others had twelve). The resulting subsets of no significant difference between sponsors are displayed in Appendix L.

In the following section the model of each sponsor is described and compared with Spring 1972 observations. The sponsor's program is assessed by considering how the sponsor's observed classrooms ranked with those of other sponsors on selected variables. The ranking of each sponsor on all variables can be found in Appendix L. Variables are identified, as usual, by section of the observation instrument (OSF, CCL, or FMO) and variable number. The adult-focused data are indicated by a superscript (a) and the child-focused data by a superscript (c). Where child variables are more appropriate in discussing a sponsor, child-focused data have been used; otherwise, adult-focused data have been used. In addition, for descriptive purposes, frequency of activity and grouping arrangements are reported by grade level. The instruction and feedback system of a sponsor are reported without regard for ranking. On COI variables, sponsors have not been adjusted for racial type, SES, or entering test scores. One might speculate that the classroom teaching processes would differ where there is a preponderance of minority children or where the children enter school with low test scores This question will be investigated using the data collected in Spring 1973.

a. Responsive Educational Model--Far West Laboratory

1) Description of the Program--Learning activities that are self-rewarding (autotelic) and an environment structured to be responsive to the individual child's needs, culture, and interests are the main principles in the Far West Laboratory program. According to the autotelic principle, the best way for a child to learn is to be in an environment in which he can try out things that interest him, and in which he can risk, guess, ask questions, and make discoveries, without serious negative psychological consequences. Autotelic activities include experiences and learning activities that help the child develop a skill, learn a concept, or acquire an attitude that can be usefully applied in some other endeavor.

In a Far West Laboratory classroom the child is expected to be free to explore and choose activities within a carefully controlled environment containing learning centers and a variety of games, activities, and experiences. The child is expected to search for solutions to his own problems in his own way, using a variety of resources, both physical and human. Rather than being directive, the adults should pose questions and guide the child to discovery of solutions. The child may then find out whether his solutions work through immediate feedback of his actions. The solutions discovered should fit together and lead to other discoveries. The child's reward is considered to be his gain from the entire experience, as well as the satisfaction of his own interest in the experience.

The site at which the observational data for the Far West Laboratory were collected is a northern industrial city with a population of approximately 100,000. Its overall Follow Through enrollment was 758, of which the classroom observation sample was 169. The data referred to below apply only to the classes observed at this site.

2) Observations--Observational data referred to in this section are found in Appendix L-1 (Child-Focused Observations) and L-2 (Adult-Focused Observations). These data are used to construct a description of the classroom environment (from the OSF variables), activities engaged in and materials used (from the CCL variables), and teaching and child processes (from the FMO variables) in the Far West Laboratory (FW) classrooms observed over four days. The superscripts c and a after the cited variable numbers refer to whether the data are found in the child-focused observations (c) in Appendix L-1, or the adult-focused observations (a) in Appendix L-2. The data reported here were collected at one site only and cannot be generalized to other sites.

Environment--The FW classroom might be a single, self-contained room or it might be an open classroom. In either case, there will be tables and chairs that can be moved to form desired arrangements. Displays in the room include the child's own art work, photographs of the child and of his classmates, and pictures of the ethnic groups represented in his class. Community events are posted in an effort to make the child aware of what is happening in his community and neighborhood (OSF 33^a, 34^a, 17^a, 18^a, 29^a - 32^a).

The child is assigned a seat and work group for some activities, but he is given freedom to choose his own place and group for others (OSF 19^a - 22^a).

Activities--When variable numbers are not cited, the CCL data referred to in this section are displayed on Table VII-1 which is included as part of the text.

In the FW classroom a wide variety of activities is available to the child (CCL 14^a). Primary emphasis is given to reading and math activities, and the occurrence of both activities increases slightly between kindergarten and second grade. The two other academic activities, social studies and science, take place about equally, although science is not introduced until the first grade. In the kindergarten, the child is observed to participate more frequently in nonacademic activities including arts and crafts, games, blocks and trucks, and dolls and dress-up. These nonacademic activities occur less often as the child grows older, although arts and crafts remain a relatively important part of the curriculum. Group time and story, singing, and dancing are also a regular part of the school day.

In academic activities, the kindergarten child most frequently works with his teacher on a one-to-one basis, whereas as a first or second grader he is more often a member of a small group or a large group when he is instructed by his teacher in these activities. When the child works independently of an adult, he generally works alone, although he may also be seated with others as he carries on his independent work.

Materials--The child's use of tapes, records, films, or TV in reading and math activities is high (CCL 30^a), and there is frequent use of games in these activities (CCL 31^a). Concrete objects are often used to illustrate math and science concepts (CCL 32^a), together with science equipment, plants, and animals (CCL 33^a).

Table VII-1

GRADE DIFFERENCES ON SELECTED CCL VARIABLES: FAR WEST LABORATORY
(Means and standard deviations per COP, computed over four days.)*

	Grade Level/Stream					
	Kindergarten		First Grade/ek		Second Grade/ek	
Variable	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Math	.30	.46	.30	.46	.35	.48
Reading	.53	.50	.49	.50	.54	.50
Social studies	.01	.11	.03	.18	.03	.17
Science	--	--	.03	.16	.03	.16
All academic activities	.84	.78	.84	.75	.99	.82
Games	.28	.45	.07	.25	.11	.31
Arts and crafts	.51	.50	.22	.42	.21	.41
Domestic arts	.01	.11	.01	.08	.02	.12
Blocks and trucks	.37	.48	.03	.16	.02	.12
Dolls	.31	.46	.06	.25	.05	.23
Teacher in any academic activity						
With one child	.15	.37	.05	.22	.07	.25
With two children	.09	.29	.06	.23	.03	.18
With small group	.09	.28	.30	.50	.25	.44
With large group	.09	.28	.14	.34	.12	.34
Teacher with one child in any activity	.17	.39	.07	.29	.07	.25
Independent groupings						
One child	1.61	1.88	1.03	1.54	1.43	1.98
Two children	1.05	1.40	.59	.99	.64	1.03
Small group	1.14	1.38	.90	1.21	.57	.96
Large group	.11	.31	.15	.36	.20	.40
Children in any academic activity	2.23	3.40	4.58	5.67	4.41	5.77

Grade	Classrooms per Grade	COPs per Grade
K	4	257
1/ek	4	278
2/ek	4	259

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*For example, at all grade levels, approximately one out of every three CCL observations recorded a math activity in progress; at all grade levels, approximately one out of every two CCL observations recorded a reading activity in progress.

Teaching Processes--By far, the largest proportion of the child's interactions with the adults in his classroom are on a one-to-one level (FMO 61^a, 73^a). Most of his other interactions with adults occur when they address a large group of which he is a member. These communications are mostly in the form of questions and requests; however, instruction is of almost equal proportion (FMO 77^a - 79^a, 81^a). Relative to other sponsors' classrooms, the child in the FW program is asked a high number of open-ended questions (FMO 79^a).

The child receives more acknowledgment from the adults in his classroom than he does corrective feedback or praise (88^a, 92^a, 97^a), and feedback is primarily given him for his task-related responses (FMO 89^a, 93^a, 99^a, 103^a). Correctives are mainly positive, guiding him to an acceptable response by means of questions or explanations (FMO 98^a, 99^a); the few negative correctives he receives are for misbehavior (FMO 101^a, 103^a). Table VII-2 displays the kind and frequency of feedback adults offer to FW children.

Child Processes--The FW child interacts with other children in the classroom to a greater extent than he does with the adults (FMO 1^c, 5^c), and the largest proportion of his interactions with other children are one-to-one (FMO 8^c - 12^c). His communication with others is largely in exchanging productive statements and comments (FMO 32^c - 34^c, 38^c, 39^c), in asking questions (FMO 18^c), and in responding to others' questions (FMO 19^c). The FW child makes more requests and asks more direct and open-ended questions than do the children in any other model, and he shares his away-from-school experiences more often than do other children (FMO 59^c).

In his nonverbal periods, the child engages in self-instruction, or listens to or observes others; he is observed listening to machines (TV, earphones, and the like) more than children in most of the other models (FMO 23^c, 43^c, 46^c, 47^c). Perhaps because of the wide variety of activities available to him (CCL 14^c), he moves around the classroom frequently (FMO 48^c).

There is a preponderance of positive behavior in the FW classroom and the classroom is generally a happy one (FMO 49^c - 56^c, 109^{ca}).

b. Tucson Early Education Model (TEEM)--U. Arizona

1) Description of the Model--The TEEM model accepts the behavior characteristics and level of development with which the child

Table VII-2

ADULT FEEDBACK TO CHILDREN: FAR WEST LABORATORY

Variable	For Behavior	$\bar{X}$ per FMO
FMO 90	Praise	0.16
FMO 94	Non-task-related acknowledgment	0.59
FMO 98	Positive corrective	1.26
FMO 101	Negative corrective	0.04
FMO 102	Firm corrective	0.06
	For Task-Related Activity	
FMO 89	Praise	0.73
FMO 93	Acknowledgment	2.96
FMO 99	Positive corrective	0.67
FMO 103	Negative corrective	0
	All	
FMO 104	All feedback	6.66

enters school and builds on them. The model calls on teachers to individualize their teaching and emphasizes persistent adult-child interaction. This interaction takes place most often in the small group setting.

The curriculum for the model focuses on four general areas of development: language competence, development of an intellectual base, development of a motivational base, and societal arts and skills. The intellectual base includes skills assumed to be necessary to the process of learning (e.g., ability to attend, recall, organize behavior toward goals, evaluate alternatives, and planning). The motivational base includes attitudes and behavior related to productive involvement (e.g., positive self concept, liking for school, task persistence, and expectation of success). Societal arts and skills include reading, writing, and math, combined with social skills of cooperation and the like. Each activity or behavioral committee setting incorporates some aspect of each of the four goal areas.

The TEEM classroom is organized into behavioral settings and interest centers for small groups, to encourage interactions of the child with his environment and others. The day is divided into two major portions, teacher-initiated time (committees or small group time) and child-initiated time (self-selection). Children are encouraged to learn from each other. Social reinforcement techniques, such as praise, attention, and affection, are liberally applied, and materials are chosen and arranged for their reinforcing value. Teachers should model desired behavior. Every effort is made to ensure that the child will come to regard school as significant and rewarding.

The site observed for U. Arizona is a small southern rural town with a population of approximately 6,000. The overall Follow Through enrollment is 339, of which the classroom observation sample is 289. The information that follows refers to those classes observed in this site only.

2) Observations--Observational data referred to in this section are found in Appendix L-1 (Child-Focused Observations) and L-2 (Adult-Focused Observations). These data are used to construct a description of the classroom environment, activities engaged in, materials used within activities, teaching processes, and child processes in the University of Arizona (UA) model. The superscripts c and a after the cited variable numbers refer to whether the data are found in the child-focused observations (c) in Appendix L-1, or the adult-focused observations (a) in Appendix L-2. The data reported here were collected at one site only and cannot be generalized to other sites.

Environment--The child in the UA classroom sits at movable tables rather than at stationary desks in rows (OSF 17^a, 18^a). His teacher assigns him to a seat and work group for the greater portion of the day; he is, however, allowed to select his own place and group for some activities during the day (OSF 19^a - 22^a). His own art work is on display in the room, as well as photographs of himself and his classmates, and pictures of the various ethnic groups reflected in the class (OSF 29^a - 31^a). Announcements of community events are also posted (OSF 32^a).

Activities--When variable numbers are not cited, the data referred to in this section are displayed on Table VII-3.

At all grade levels, the UA student spends more time in academic than in nonacademic activities. About half of his academic time is spent in language development activities; time spent in math runs a

Table VII-3

GRADE DIFFERENCES ON SELECTED CCL VARIABLES: U. ARIZONA
(Means and standard deviations per COP, computed over four days.)[*]

	Grade Level/Stream					
	First Grade/ef		Second Grade/ef		Third Grade/ef	
Variable	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Math	.41	.49	.27	.45	.42	.50
Reading	.54	.50	.46	.50	.53	.50
Social studies	--	--	.02	.14	.01	.10
Science	.11	.32	.01	.08	.11	.31
All academic activities	1.06	.96	.76	.82	1.08	1.02
Games	.12	.32	.06	.24	.08	.27
Arts and crafts	.24	.43	.25	.43	.27	.44
Domestic arts	.02	.14	--	--	--	--
Blocks and trucks	.05	.22	.04	.19	.03	.18
Dolls	.02	.15	.01	.10	.05	.22
Teacher in any academic activity						
With one child	.01	.12	.06	.24	.06	.28
With two children	.01	.12	.02	.15	.01	.10
With small group	.37	.48	.18	.45	.27	.45
With large group	.10	.31	.07	.29	.13	.34
Teacher with one child in any activity	.08	.16	.08	.28	.07	.30
Independent groupings						
One child	.33	.76	.42	.97	.48	1.06
Two children	.20	.60	.16	.58	.27	.65
Small group	.86	1.05	1.29	1.61	1.28	1.55
Large group	.06	.23	.12	.39	.08	.31
Children in any academic activity	3.56	4.37	4.55	7.04	4.57	5.84

Grade	Classrooms per Grade	COPs per Grade
1/ef	4	287
2/ef	4	287
3/ef	4	286

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[*] For example, at all grade levels, approximately one out of every two CCL observations recorded a reading activity in progress; at all grade levels, approximately one out of every four CCL observations recorded an arts and crafts activity in progress.

close second. Science is part of the curriculum at all three grade levels, but formal social studies is not a part of his daily schedule until the second grade. His nonacademic activities include arts and crafts at all grade levels at which he spends considerable time. Other nonacademic activities in which he participates are games, blocks and trucks, and dolls. In addition, he will have the opportunity to plan his day or to share experiences with others, as UA classrooms devote a significant amount of time to such group activities (CCL 2^a).

Most of his day is spent in small groups, either with or without an adult, although when he works independently of adults he is often observed to work by himself or with one other child.

Materials--While he is pursuing academic activities, the UA child has access to materials such as texts, workbooks, and other symbolic materials, language experience charts, and audio-visual and science equipment. Concrete objects for his math instruction are also available to him (CCL 28^a - 33^a).

Teacher Processes--The data used in this section are taken from the list of FMO variables in Appendix L-2 (Adult-Focused Observations), showing mean frequency of occurrence of variables per Five-Minute Observation.

The CCL variables noted on Table VII-3 show that the UA student is generally a member of a small group; however, the largest proportion of his interactions with the adults in his classroom are on a one-to-one basis (FMO 61^a, 73^a), and adults interact with him as a member of a large group more frequently than as a member of a small group (FMO 63^a, 64^a, 69^a - 72^a). One interpretation of this seeming contradiction might be that instruction is on an individual level, even though the child is seated with a small group, and that directions or announcements are given to the whole class preceding their dispersal into small groups.

Adults in the UA classroom ask the child direct questions and give requests/commands to him in higher proportion than they ask open-ended questions (FMO 77^a - 79^a). Even so, they ask more open-ended questions of the child than do the adults in most other models.

More than half of the child's interactions with the adults are in the form of receiving instruction, much of it instruction in academic activities. Objects might be used as instructional aids (FMO 81^a - 84^a).

Feedback is given regularly to the child (Table VII-4) most frequently in acknowledgment of task-related responses (FMO 104^a, 92^a - 95^a). Very little praise is given him (FMO 88^a). Corrective feedback is usually given in a positive manner (guiding the child to an alternative response by means of a question or with an explanation), and the greatest proportion of it is given to correct his behavior (FMO 97^a - 106^a).

Table VII-4

ADULT FEEDBACK TO CHILDREN: U. ARIZONA

Variable	For Behavior	$\bar{X}$ per FMO
FMO 90	Praise	0.11
FMO 94	Non-task-related acknowledgment	0.29
FMO 98	Positive corrective	1.47
FMO 101	Negative corrective	0.06
FMO 102	Firm corrective	0.19
	For Task Related Activity	
FMO 89	Praise	0.53
FMO 93	Acknowledgment	3.22
FMO 99	Positive corrective	0.36
FMO 103	Negative corrective	0.002
	All	
FMO 104	All feedback	6.91

UA adults' productive statements to the child are more frequent than are those of adults in other models (FMO 96^a), and the child is listened to by the adults in his classroom more often than are children in other models (FMO 108^a). This, plus the fact that UA adults rank highest or among the highest on all adult positive and negative affect variables (FMO 109^a - 115^a) make it appear that the UA child's classroom provides an atmosphere of free give and take, rather than directiveness, and of free expression of feeling.

Child Processes--The UA child frequently interacts with the adults and other children in the classroom (FMO 1^c - 6^c). Most of his interactions with other children are on a one-to-one basis (FMO 8^c, 9^c) and these interactions consist mainly of general comments and productive statements (FMO 33^c, 34^c, 38^c, 39^c), rather than questions, responses, or feedback (FMO 15^c - 19^c, 36^c, 37^c, 40^c). He does, however, ask more open-ended questions than children in most other models (FMO 17^c).

Although the UA child interacts with others frequently, he spends a much larger part of his time alone, nonverbally (FMO 7^c, 47^c), often in self-instruction, at which he is task-persistent (FMO 23^c, 29^c), and in listening to or watching a machine (earphones, filmstrips, and the like) or to the adults in his room (FMO 31^c). The child in the UA program is attentive to others or to a machine more often than children in any other model (FMO 43^c).

His classroom has an atmosphere that is conducive to expression of a wide range of feelings and he shows both positive and negative behavior to a greater degree than children in the other models (FMO 49^c - 56^c).

c. Bank Street College of Education Approach

1) Description of the Model--Basic to the Bank Street approach is a rational, democratic life situation in the classroom. The child is encouraged to participate actively in his own learning, and the adults support this autonomy by extending the child's world and making him aware of meanings of his experiences. The teaching is diagnostic with individualized follow-up. The learning environment is constantly restructured to adapt it to the special needs and emerging interests of the children, particularly their need for a positive sense of themselves.

This model aims at children's acquiring academic skills within a broad context of planned activities that provide appropriate ways of expressing and organizing children's interests. Language, math, arts and crafts are incorporated and integrated into a curriculum that emphasizes home, school, and community. The classroom is organized into work areas filled with stimulating materials that permit a wide variety of motor and sensory experiences, as well as opportunities for independent investigation in cognitive areas and for interpretation of experience through creative media such as dramatic play, music, and art. Teachers and paraprofessionals work as a team, surrounding the children with language, which should be learned as a useful and pleasurable tool. Math, too, is highly functional and pervades the curriculum. The focus of the Bank Street approach is on tasks that are satisfying in terms of the child's own goals and productive for his cognitive and affective development.

The site observed for Bank Street is a rural area in the south where schools are dispersed over a wide area. The overall Follow Through enrollment is 1236, of which the classroom observation sample is 376. The following information refers to those classes observed in this site only.

2) Observations--Observational data referred to in this section are found in Appendix L-1 (Child-Focused Observations) and L-2 (Adult-Focused Observations). These data are used to construct a description of the classroom environment, activities engaged in, materials used within activities, teaching processes, and child processes in the Bank Street (BC) model. The superscripts c and a after the cited variable numbers refer to whether the data are found in the child-focused observations (c) in Appendix L-1, or the adult-focused observations (a) in Appendix L-2. The data reported here were collected at one site only and cannot be generalized to other sites.

Environment--The BC child spends his school day in a classroom containing tables and chairs that can be moved about in desired arrangements. and displays that include his own arts and crafts work, photographs of himself and his classmates, and pictures or posters reflecting the ethnic groups represented in the class (OSF 17^a, 29^a - 31^a). Announcements of community events that might interest him or his parents are also posted (OSF 32^a).

The child is assigned to a seat and work group by his teacher for the greater part of the day, although he is given freedom at some times to choose his own place and group in which to work (OSF 19^a - 22^a).

Activities--From Table VII-5, it is seen that throughout the first, second, and third grades, the BC student's curriculum is focused heavily on academic activities, with emphasis primarily on language development and secondarily on math. Social studies are introduced

Table VII-5

GRADE DIFFERENCES ON SELECTED CCL VARIABLES: BANK STREET
(Means and standard deviations per COP, computed over four days.)*

	Grade Level/Stream					
	First Grade/ef		Second Grade/ef		Third Grade/ef	
Variable	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Math	.34	.47	.59	.49	.37	.48
Reading	.70	.46	.66	.47	.54	.50
Social studies	--		.18	.38	.11	.32
Science	.01	.11	.01	.12	.04	.20
All academic activities	1.05	.74	1.45	.95	1.06	.68
Games	.06	.24	.04	.20	.03	.17
Arts and crafts	.20	.40	.14	.35	.07	.25
Domestic arts	.02	.14	--	--	.01	.12
Blocks and trucks	.22	.42	.03	.18	--	--
Dolls	--		.01	.08	--	
Teacher in any academic activity						
With one child	.21	.41	.09	.29	.03	.18
With two children	.02	.15	.04	.20	.01	.12
With small group	.23	.42	.54	.51	.35	.48
With large group	.11	.32	.12	.32	.28	.45
Teacher with one child in any activity	.21	.41	.11	.31	.03	.18
Independent groupings						
One child	.17	.52	.84	1.24	.24	.67
Two children	.09	.37	.60	.95	.25	.54
Small group	.75	.99	1.16	.98	.91	1.06
Large group	.13	.38	.10	.34	.13	.36
Children in any academic activity	2.43	3.59	6.72	5.72	5.63	6.18

Grade	Classrooms per Grade	COPs per Grade
1/ef	4	265
2/ef	4	285
3/ef	4	270

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*For example, at the 1/ef level, one out of every three CCL observations recorded a math activity in progress; at the 2 grade level, more than one out of every two CCL observations recorded a math activity in progress.

to him in the second grade* and science activities increase in frequency in the third grade. Among the nonacademic activities in which he participates, blocks and trucks and arts and crafts are important elements of the daily schedule at the first grade level. At the second and third grade levels, arts and crafts remain frequent activities, while blocks and trucks, as would be expected, become less important in second grade and are not observed at all in the third grade.

The curricular activities in which the child is involved are most often in a small group setting, whether they be academic or nonacademic and whether his work is being guided by a teacher or he is working independent of any adult. At the first grade level, his teacher frequently meets with him on an individual basis; however, large group instruction becomes increasingly more important as he progresses through the grades. In keeping with the developmental aspects of this model, the BC child works independently of adults more often in the second and third grades than he did as a first grader.

Materials--In addition to texts and workbooks, the BC child has available to him audio-visual equipment (films, tapes, earphones, and the like), concrete objects (Cuisenaire rods, counting sticks), and science equipment (microscopes, magnifying glasses, plants, animals). Language experience charts and games are also used in his instruction (CCL 28[a] - 33[a]).

Teaching Processes--Although the Bank Street student is generally a member of a small group, as previously seen on Table VII-5, he interacts with the adults working with his group on a one-to-one basis far more often than he interacts with them as a member of a group (FMO 61[a] - 76[a]).

The child is asked direct questions and given commands or requests in almost equal proportions (FMO 77[a], 78[a]). He is asked open-ended questions comparatively infrequently (FMO 79[a]). The greatest proportion of adult attention he receives is in the form of instruction

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* The SRI Classroom Check List does not provide for coding the content of activities; however, our personal observations prompt us to say that a child in the Bank Street program would be doing his math, reading, and art activities within the context of social studies; that is, his home, school, and community interests form the central theme around which his learning activities take place.

(FMO 81[a]), about one-third of which is in academic activities (FMO 82[a]). Objects are not often used for demonstrating or teaching purposes (FMO 83[a]).

He receives regular feedback from the adults (FMO 104[a]). Praise is not often given him, but what praise he does get is for task-related behavior (FMO 88[a], 89[a]). Acknowledgment is frequent and mostly in task-related activities (FMO 92[a], 93[a]). He gets more corrective feedback than he does praise and acknowledgment (FMO 97[a]). Corrective feedback is almost invariably given in a positive manner guiding him to an acceptable response by means of a question or with an explanation: (FMO 97[a], 99[a]). The child rarely receives negative correctives (threats, demeaning or sarcastic remarks) for either behavior or task-related responses (FMO 101[a], 103[a]).

Table VII-6

ADULT FEEDBACK TO CHILDREN: BANK STREET

Variable	For Behavior	$\bar{X}$ per FMO
FMO 90	Praise	0.01
FMO 94	Non-task-related acknowledgment	0.09
FMO 98	Positive corrective	0.84
FMO 101	Negative corrective	0.02
FMO 102	Firm corrective	0.17
	For Task-Related Activity	
FMO 89	Praise	0.56
FMO 93	Acknowledgment	2.65
FMO 99	Positive corrective	2.36
FMO 103	Negative corrective	0.01
	All	
FMO 104	All feedback	7.12

Child Processes--The child in a Bank Street program appears to be expressive. He talks to adults and other children with almost equal frequency (FMO 1^c, 5^c) and initiates interactions with adults and other children in the form of comments (both general and task-related) and questions (FMO 2^c - 6^c, 8^c - 12^c, 15^c - 18^c, 32^c - 34^c, 38^c, 39^c). He rarely gives others feedback of any kind (FMO 36^c, 37^c, 40^c).

Task-related activities consume the greatest proportion of his time (FMO 57^c). These task-related time periods consist mainly of self-instruction, much of it in academic activities, and at which he is very task-persistent (FMO 23^c, 24^c, 29^c). The majority of his task-related activity is nonverbal (FMO 47^c).

Adults in the BC program are positive in their approach to the children (FMO 110^c). This is reflected in a positive, happy child (FMO 49^c, 50^c) and in a generally happy classroom (FMO 109^c). The BC model ranked higher than any other model on these affect variables.

d. Mathemagenic Activities Program (MAP)--U. Georgia

1) Description of the Model--An activity-based curriculum is essential to the MAP model, since it postulates active manipulation of and interaction with the environment as the basis for learning. Individual and group tasks are structured to allow each child to involve himself in them at physical and social levels as well as at the intellectual level of his being. Concrete materials are presented in a manner that permits the child to experiment and discover problem solutions in a variety of ways. Both teaching techniques and curriculum materials emphasize sequential arrangement of tasks in small steps that stimulate and challenge the child to try the next step beyond his current experience and knowledge level.

Thus, the MAP classroom stresses learning by doing, as well as individual initiative and decision-making on the part of the child. An attempt is made to maintain a careful balance between highly structured and relatively unstructured learning situations and between the level of conceptual material and the capability of individual children. Small group instruction by teacher and aides is emphasized but with specific provisions for individual activity. This pattern of instruction results in a great variety of media used by teachers and children, activities available to children, and social situations encountered by children.

The classroom is arranged to allow several groups of children to engage simultaneously in similar or different activities. Learning materials include educational games children can use without supervision in small groups or by themselves. Art, music, and physical education are considered MAP activities of equal importance with language, mathematics, science, and social studies. Feelings of self-confidence and motivation to learn are viewed as natural consequences of the mathemagenic approach to learning.

The site at which the observational data were collected for U. Georgia is a small rural area in the south with a population of approximately 1500. The overall Follow Through enrollment is 410, of which the classroom observation sample is 305. The following data refer to those classes observed at this site only.

2) Observations--Observational data referred to in this section are found in Appendix L-1 (Child-Focused Observations), and L-2 (Adult-Focused Observations). These data are used to construct a description of the classroom environment, activities engaged in, materials used within activities, teaching processes, and child processes over the four days of observations in the University of Georgia (UG) model. The superscripts c and a after the variable numbers that are cited refer to whether the data are found in the child-focused observations (c) in Appendix L-1, or the adult-focused observations (a) in Appendix L-2. The data reported here were collected at one site only and cannot be generalized to other sites.

Environment--The UG classroom is furnished with tables and chairs that can be moved about as desired (OSF 17^a). In the room are displays of the child's own art work, photographs of the child and his classmates, and pictures of the ethnic groups represented in his class (OSF 29^a - 31^a). Announcements of community events are posted, as well as displays of other sorts that might interest him (OSF 32^a, 33^a).

His teacher assigns him to work groups, although more often than not he can choose his own place to sit within those groups (OSF 19^a - 22^a).

Activities--When variable numbers are not cited, the data referred to in this section are displayed on Table VII-7.

The UG child's curriculum stresses academic activities at all grade levels, with primary emphasis on reading and language arts. Next in importance in the daily schedule is math. Science activities occur more often in UG classrooms than in most other models (CCL 7^{ca}) and are participated in more and more frequently as the child progresses from first to third grades.

Table VII-7

GRADE DIFFERENCES ON SELECTED CCL VARIABLES: U. GEORGIA
(Means and standard deviations per COP, computed over four days.)*

	Grade Level/Stream					
	First Grade/ef		Second Grade/ef		Third Grade/ef	
Variables	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Math	.50	.50	.32	.47	.32	.47
Reading	.63	.48	.63	.49	.54	.50
Social studies	.05	.22	.03	.18	.04	.20
Science	.07	.25	.08	.28	.11	.32
All academic activities	1.25	.82	1.07	.60	1.01	.62
Games	.07	.26	.01	.08	.11	.31
Arts and crafts	.09	.29	.14	.34	.12	.32
Domestic arts	--	--	.01	.08	.01	.09
Blocks and trucks	--		.01	.08	.01	.11
Dolls	--		.02	.13	.01	.12
Teacher in any academic activity						
With one child	.04	.28	.03	.27	.02	.15
With two children	.02	.13	--	--	.03	.18
With small group	.45	.50	.46	.50	.56	.50
With large group	.23	.42	.30	.46	.10	.30
Teacher with one child in any activity	.05	.34	.05	.34	.05	.34
Independent groupings						
One child	.34	.81	.69	1.17	.25	.68
Two children	.17	.48	.14	.48	.17	.44
Small group	.39	.60	.59	.80	.62	.90
Large group	.08	.27	.07	.26	.04	.21
Children in any academic activity	1.69	2.93	3.11	4.05	2.42	3.30

Grade	Classrooms per Grade	COPs per Grade
1/ef	4	285
2/ef	4	288
3/ef	4	269

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*For example, at the 1/ef level, one out of every two CCL observations recorded a math activity in progress; at the grade 2 level, one out of every three CCL observations recorded a math activity in progress.

Arts and crafts and games and puzzles are important components of the UG child's nonacademic curriculum at all grade levels.

When the teacher is leading an academic lesson in which he is participating, the child is most often a member of a small group at all grade levels. Opportunities for him to meet alone with the teacher in academic activities are rare.

When the child works independently of an adult, he is, again, generally a member of a small group; he might also work alone. Sometimes he works independently with one other child, and occasionally as a part of a large group.

Materials--Although the child uses games to some extent, audio-visual and science equipment, and texts and workbooks are his primary instructional media (CCL 28[a], 30[a], 31[a], 33[a]). UG children ranked high in the use of concrete objects for social studies and arithmetic instruction (CCL 32[ca]).

Teaching Processes--Data used to describe teaching processes are taken from the adult Five-Minute Observation (FMO) variables in Appendix L-2.

In the UG classroom, the majority of the adults' interactions with the child are on a one-to-one basis. Since children most often work in small groups, it appears that adults address individual children within those groups rather than the group as a whole (FMO 63[a], 64[a]).

Direct questions and requests/commands are the usual means of questioning the child (FMO 77[a], 78[a]). Proportionately few of the questions asked the child are open-ended (FMO 79[a]). (The UG model ranks lowest among the models on this variable.)

The occurrence of adult informing or adult instruction of the child is high, and over half of that instruction is in academic activities (FMO 81[a], 82[a]). The UG child receives more direct instruction and more academic instruction than do children in other models.

Feedback is generally given in the form of acknowledgments and correctives (FMO 92[a], 97[a]). Corrective feedback is normally given in a positive manner; negative correctives are seldom observed (FMO 98[a], 99[a], 101[a], 103[a]). Most feedback is given a child for his task-related responses; very little is given for his behavior.

Table VII-8

ADULT FEEDBACK TO CHILDREN: U. GEORGIA

Variable	For Behavior	$\bar{X}$ per FMO
FMO 90	Praise	0.03
FMO 94	Non-task-related acknowledgment	0.04
FMO 98	Positive corrective	0.37
FMO 101	Negative corrective	0.04
FMO 102	Firm corrective	0.11
	For Task-Related Activity	
FMO 89	Praise	0.83
FMO 93	Acknowledgment	2.26
FMO 99	Positive corrective	1.56
FMO 103	Negative corrective	0.02
	All	
FMO 104	All feedback	5.93

Child Processes--The UG child talks more with the adults than with the children in his classroom (FMO 1^c, 5^c, 6^c); however, proportionately little of his time is devoted to talking or otherwise interacting with others (FMO 7^c). While little of his conversation is in the form of questions, he does exchange comments with adults and other children, and he responds to questions frequently (FMO 15^c - 18^c, 19^c, 32^c - 34^c).

The UG child spends considerable time engaged in self-instruction, at which he is task-persistent (FMO 23^c, 29^c). Much of his self-instruction is concerned with academic activities and he is aided in these pursuits by the use of objects (FMO 24^c, 26^c). He is highly attentive to adults or machines (earphones, filmstrips, and the like) as they interact with him in his learning activities (FMO 30^c, 31^c).

The UG child is not often expressive of his feelings, either positive or negative (FMO 49^c - 56^c), nor are the adults in his classroom (FMO 110^a, 112^a). This suggests a calm atmosphere without too many ups and downs.

e. Engelmann-Becker Model for Direct Instruction--U. Oregon

1) Description of the Model--The sponsors of this model insist that a child who fails is a child who has not been properly taught and that the remedy lies in teaching the skills that have not been mastered. The model attempts to bring disadvantaged children up to the "normal" level of achievement of their middleclass peers by building at an accelerated pace on whatever skills children bring to school.

Using programmed materials and behavior modification principles, the model employs strategies to teach concepts and skills required to master subsequent tasks oriented toward a growing level of competence. Desired behaviors are systematically reinforced by praise and pleasurable activities, and unproductive or antisocial behavior is ignored.

The classroom is usually staffed with two or three adults for every 25 to 30 children: a regular teacher and one or two full-time aides recruited from the Follow Through parent community. Working very closely with a group of eight to eleven pupils at a time, each teacher and aide employs the programmed materials in combination with frequent and persistent reinforcing responses, applying remedial measures where necessary and proceeding only when a child's success with a given instructional unit has been demonstrated. The training for implementing the model includes local summer workshops for all teachers and teacher aides and in-service training during the school year.

The site observed for U. Oregon is in a small southern town with a population of approximately 5,000. The overall Follow Through enrollment is 380, of which the classroom observation sample is 287. The following data refer to the classes observed in this site only.

2) Observations--Observational data are used to construct a description of the classroom environment, activities engaged in, materials used within activities, teaching processes, and child processes over the four days of observations in the University of Oregon model. The data referred to are taken from the tables of mean frequency of occurrence and standard deviations on the total list of variables that appears in Appendix L-1 (Child-Focused Observations) and Appendix L-2 (Adult-Focused

Observations). The superscripts c and a after the variable numbers that are cited refer to whether the data are found in the child-focused observations (c) in Appendix L-1 or in the adult-focused observations (a) in Appendix L-2. The data reported here were collected at one site only and cannot be generalized to other sites.

Environment--The UO classroom is designed to use movable tables and chairs as well as stationary desks arranged in rows (OSF 17^a, 18^a). Teachers assign the child to work groups and to seats, although the child is free to choose his own seat at some periods of the day (OSF 19^a - 22^a). Photographs of the child and his classmates are displayed, as well as pictures reflecting the ethnic groups represented in the class (OSF 30^a, 31^a). The child's own art work is exhibited, and announcements of community events are posted (OSF 29^a, 32^a).

Activities--From Table VII-9, it is seen that at all grade levels the UO child spends almost all of his time in language and math activities; the only other activity they engage in with any regularity is arts and crafts. At the first grade level, a child may also work with puzzles and games, but this activity occurs infrequently. The observed emphasis on language and math activities is consistent with the UO program's design.

Although he may occasionally be observed elsewhere, the first or second grader is usually a part of a small group when he is receiving instruction in academic activities. In the third grade, the child is more often part of a large group when the teacher is instructing him in these activities. At all grade levels, he seldom receives individual instruction from the teacher.

When the child works independent of any adult, he is also most commonly part of a small group. In this independent work situation, he frequently works alone, or in a large group. The latter condition occurs more often in the third grade, however, than in first or second grade.

Materials--More than the children of any other model, the UO child is instructed by means of programmed material or texts and workbooks (CCL 28^a). Language experience charts are also used, and despite a very low occurrence of science activities, science equipment is used in the UO classroom to a greater extent than in any other model (CCL 29^{ca}, 32^{ca}).

Table VII-9

GRADE DIFFERENCES ON SELECTED CCL VARIABLES: U. OREGON
(Means and standard deviations per COP, computed over four days.)*

	Grade Level/Stream					
	First Grade/ef		Second Grade/ef		Third Grade/ef	
Variable	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Math	.84	.37	.76	.43	.70	.46
Reading	.90	.30	.90	.30	.94	.23
Social studies	--	--	--	--	--	--
Science	--		--	--	--	--
All academic activities	1.74	.57	1.64	.57	1.64	.57
Games	.01	.10	--	--	--	--
Arts and crafts	.07	.25	.02	.15	.01	.08
Domestic arts	--	--	--	--	--	--
Blocks and trucks	--	--	--		--	--
Dolls	--	--	--		--	--
Teacher in any academic activity						
With one child	.03	.16	.09	.30	.06	.23
With two children	.01	.08	.01	.08	.02	.13
With small group	.75	.44	.66	.49	.24	.43
With large group	.09	.30	.03	.16	.51	.50
Teacher with one child in any activity	.03	.16	.09	.30	.06	.24
Independent groupings						
One child	.18	.56	.60	1.15	.23	.86
Two children	.05	.26	.02	.18	.03	.26
Small group	.78	.69	.84	.63	.54	.71
Large group	.13	.35	.21	.43	.45	.61
Children in any academic activity	3.22	3.71	4.03	4.55	7.04	5.90

Grade	Classrooms per Grade	COPs per Grade
1/ef	4	287
2/ef	4	288
3/ef	4	288

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*For example, at the 1/ef level, more than eight out of every ten CCL observations recorded a math activity in progress, and nine out of every ten CCL observations recorded a reading activity in progress.

Teaching Processes--Observational data collected on the Five-Minute Observation protocol during adult-focused observations are used to describe teaching processes in this section. These data are found in Appendix L-2, Adult-Focused Observations.

Adults in the UO classroom interact with the child in small groups most often (FMO 63[a], 69[a], 70[a]). One-to-one interactions with the child also occur frequently, although to a lesser degree than small group interactions (FMO 61[a], 65[a], 66[a]).

In the UO model, the child is given commands/requests or asked direct questions; open-ended questions are rarely asked him (FMO 77[a] - 79[a]). The child's instruction is predominantly in academic activities (FMO 81[a], 82[a]). Objects are seldom used in instructing the child (FMO 83[a], 84[a]).

Table VII-10

ADULT FEEDBACK TO CHILDREN

Variable	For Behavior	$\bar{X}$ per FMO
FMO 90	Praise	0.18
FMO 94	Non-task-related acknowledgment	0.04
FMO 98	Positive corrective	1.13
FMO 101	Negative corrective	0.04
FMO 102	Firm corrective	0.07
	For Task-Related Activity	
FMO 89	Praise	1.60
FMO 93	Acknowledgment	2.85
FMO 99	Positive corrective	2.18
FMO 103	Negative corrective	0.01
	All	
FMO 104	All feedback	8.54

Occurrences of praise and acknowledgment are high, and most of it is given for task-related responses (FMO 88 - 95^a). Corrective feedback is also given the child, generally in a positive manner (FMO 98^a, 99^a). The three-part sequence of adult academic direct request followed by child response followed by adult feedback is a frequent occurrence in the UO classroom in accord with the model's intended instructional format (FMO 105^a).

Adults in the UO classrooms are highly attentive to the child; they rank second highest among the adults in other models on this variable (FMO 108^a).

A relatively calm atmosphere is suggested since incidences of either positive or negative affect among adults in the UO model were few (FMO 110^a - 115^a).

Child Processes--Observational data collected on the Five-Minute Observation form during child-focused observations are used to describe child processes in this section. These data are found in Appendix L-1, Child-Focused Observations.

The UO child is highly interactive with the adults in the classroom (FMO 1^c - 4^c), and interact very little with the other children (FMO 5^c - 12^c, 33^c, 34^c). Child interactions with adults mainly take the form of initiating and responding (FMO 2^c, 19^c). His responses are often of academic content, and more often than the children in the other models, he makes extended responses following open-ended questions (FMO 20^c, 22^c).

Self-instruction consumes a large part of his time and he is very task-persistent while engaged in this activity (FMO 23^c, 29^c).

Like the adults in his classroom, the UO child seldom expresses positive or negative feelings (FMO 49^c - 56^c).

f. Behavior Analysis Approach--U. Kansas

1) Description of the Model--The Behavior Analysis Approach is based on the experimental analysis of behavior. It uses a token exchange system to provide precise, positive reinforcement of desired behavior. The tokens provide an immediate reward to the child for successfully completing a learning task. He can later exchange these tokens for an activity he particularly values, such as playing with blocks or listening to stories. Initial emphasis in the behavioral analysis classroom is on developing social and classroom skills, followed by increasing

emphasis on the core subjects of reading, mathematics, and handwriting. The goal is to achieve a standard but still flexible pattern of instruction and learning that is both rapid and pleasurable.

The model based on this approach calls for careful and accurate definitions of instructional objectives, whether they have to do with social skills or academic skills. The curriculum materials used describe the behavior a child will be capable of at the end of a learning sequence, and clearly state criteria for judging a response to be correct. They also require that the teacher make frequent reinforcing responses to the child's behavior and permit the child to progress through learning tasks at his own pace.

In the Behavior Analysis classroom three to four adults work together as an instructional team: a teacher leads the team and assumes responsibility for the reading program; a full-time aide concentrates on small group math instruction; and one or two project parent aides attend to spelling, handwriting, and individual tutoring. (Many parents have a short training cycle and then are rotated into the classroom for approximately six weeks. This allows a large number of parents to become involved in the classroom.) Instructional and special activity periods alternate throughout the day, the amount of time for instruction increasing as the amount of reinforcement required to sustain motivation decreases.

The site observed for U. Kansas is in a small rural town in the south with a population of approximately 3,000. The overall Follow Through enrollment is 377, of which the classroom observation sample is 290. The following data refer to those classes observed in this site only.

2) Observations--Observational data are used to construct a description of the classroom environment, activities engaged in, materials used within activities, teaching processes, and child processes over the four days of observations in the University of Kansas model. The data referred to are taken from the tables of mean frequency of occurrence and standard deviations on the total list of variables that appears in Appendix L-1 (Child-Focused Observations) and Appendix L-2 (Adult-Focused Observations). The superscripts c and a after the variable numbers that are cited refer to whether the data are found in the child-focused observations (c) in Appendix L-1, or the adult-focused observations (a) in Appendix L-2. The data reported here were collected at one site only and cannot be generalized to other sites.

Environment--The UK classroom is arranged with tables and chairs that can be moved into any desired groupings (OSF 17[a]). The child is generally assigned to a particular seat and work group by his teacher; however, there are a few periods during the day when the child can choose his own seat (OSF 19[a] - 22[a]).

Displayed in the classroom are photographs of the children, pictures of the various ethnic groups represented in the class, announcements of community events, the children's own art, and other exhibits of interest to the children (OSF 29[a] - 32[a]).

Activities--When variable numbers are not cited, the data referred to in this section are displayed on Table VII-11.

The UK child's curriculum places heavy emphasis on academic activities at all grade levels. Language development activities occur most frequently, followed closely by math. Nonacademic activities that the child pursues include arts and crafts (most frequent) and games and puzzles. In kindergarten, first grade, and second grade, the UK student also plays with blocks and trucks and dolls.

Academic activities conducted by the teacher are carried out in a small group setting. The first and second grade child might meet occasionally with the teacher on a one-to-one basis or as a member of a large group.

When the child is instructed by aides or volunteers in academic activities, the setting is also normally a small group (CCL 19[a] - 26[a]). Volunteers are observed instructing groups of children in academic activities with much greater frequency than in any other model (CCL 24[a] - 26[a]).

When he is working independent of any adult, the kindergarten or first grade child is usually seated with a small group. At the second grade level, the child is more apt to be seated alone than with a small group when he is working independently. At all grade levels, the child might work with one other child; the occurrence of this grouping arrangement increases as the child gets older.

Materials--Textbooks, workbooks, and other symbolic objects (e.g., programmed materials) are used to instruct the child in academic activities (CCL 28[c]). Manipulable concrete objects are used for instruction in math and/or social studies (CCL 32[a]); science equipment which

Table VII-11

GRADE DIFFERENCES ON SELECTED CCL VARIABLES: U. KANSAS

(Means and standard deviations per COP, computed over four days.)*

	Grade Level/Stream					
	Kindergarten		First Grade/ek		Second Grade/ek	
Variable	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Math	.69	.46	.73	.45	.75	.43
Reading	.77	.42	.80	.40	.82	.38
Social studies	--	--	.02	.07	.01	.10
Science	--	--	--	--	.02	.14
All academic activities	1.46	.83	1.53	.81	1.60	.71
Games	.04	.20	.03	.18	.05	.21
Arts and crafts	.10	.29	.12	.32	.05	.21
Domestic arts	--	--	--	--	--	--
Blocks and trucks	.02	.13	.01	.07	.02	.14
Dolls	.01	.09	--	--	.02	.14
Teacher in any academic activity						
With one child	.02	.06	.03	.16	.06	.34
With two children	.02	.17	.03	.07	.03	.18
With small group	.69	.46	.68	.47	.58	.50
With large group	.01	.06	.02	.13	.04	.20
Teacher with one child in any activity	.01	.10	.03	.18	.07	.34
Independent groupings						
One child	.18	.63	.11	.35	.62	1.37
Two children	.04	.25	.06	.26	.12	.41
Small group	.27	.56	1.00	.93	.43	.96
Large group	.08	.27	.02	.07	.03	.18
Children in any academic activity	.63	1.72	3.24	3.71	1.66	3.35

Grade	Classrooms per Grade	COPs per Grade
K	4	271
1/ek	3	217
2/ek	3	2[illegible]2

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*For example, at the K level, almost seven out of every ten CCL observations recorded a math activity, and one out of every ten CCL observations recorded an arts and crafts activity.

might include plants and animals, is also available to the child (CCL 33[a]). Audio-visual equipment is rarely used (CCL 30[ca]).

Teaching Processes--Although the CCL variables noted earlier show the UK child to be a member of a small group most of the time, his interactions with the adults in the classroom are consistently on a one-to-one basis. Several observation variables indicate that teachers, aides, and volunteers direct most of their communication to one child at a time (FMO 61[a], 65[a], 66[a], 73[a] - 76[a]).

The UK child receives comparatively little direct information from the adults in his classroom (FMO 81[a]). Much of his instruction is in a sequence of requests or direct questions followed by a response followed by feedback (FMO 105[a], 106[a]). Feedback is offered through praise, acknowledgment, and correctives. Most of the correctives are given in a positive manner, guiding the child to a correct or acceptable response. UK ranked highest among the sponsors in the use of general feedback, and specifically in the giving of praise and positive correctives (FMO 88[a], 98[a], 99[a], 104[a]).

Table VII-12

ADULT FEEDBACK TO CHILDREN: U. KANSAS

Variable	For Behavior	$\bar{X}$ for FMO
FMO 90	Praise	2.72
FMO 94	Non-task-related acknowledgment	0.49
FMO 98	Positive corrective	1.19
FMO 101	Negative corrective	0.05
FMO 102	Firm corrective	0.16
	For Task-Related Activity	
FMO 89	Praise	1.34
FMO 93	Acknowledgment	2.88
FMO 99	Positive corrective	3.95
FMO 103	Negative corrective	0.003
	All	
FMO 104	All feedback	14.89

Child Processes--The UK child is highly interactive with the adults in his classroom (FMO 2^c), but he engaged in comparatively few interactions with the other children (FMO 5^c, 6^c). When he is not interacting with others, he is usually engaged in a task-related activity (FMO 57^c) that probably consists of academic self-instruction (FMO 23^c, 24^c). He is task-persistent in his self-instruction and uses objects as instructional aids (FMO 25^c, 26^c, 29^c).

Perhaps following the adults' lead, he gives praise and acknowledgment as well as corrective feedback to others (FMO 36^c, 37^c). Because the adults in his class give him comparatively little direct instruction (FMO 81^a), he is not frequently observed listening or attending to them (FMO 31^c, 43^c, 45^c).

Despite his spending a high proportion of time in self-instruction, the UK child expresses himself verbally more than do the children of other models (FMO 47^c).

UK children ranked in the middle range of sponsors on the expression of positive and negative feelings (FMO 49^c - 56^c) suggesting a relatively calm atmosphere in the classroom.

g. Cognitively Oriented Curriculum Model--High/Scope

1) Description of the Model--Derived from the theories of Piaget and developed through eight years of research with disadvantaged children, the Cognitively Oriented Curriculum model provides teachers in the early elementary grades with a theoretical framework of cognitive goals combined with auxiliary commercial materials and a strategy for teaching.

Five cognitive areas have been derived from Piaget's research with young children: classification, number, causality, time, and space. These areas are presented in the curriculum as a carefully sequenced set of goals that enables the teacher to focus on the development of specific kinds of thought processes essential to children's mental growth. Selected materials should provide for the creative involvement of children in the learning process rather than offering "success" if they master a set of "right answers."

Children learn by doing, experimenting, exploring, and talking about what they are doing. To enhance these learning opportunities, the model may require a number of changes in traditional classroom and teaching arrangements: (1) Instruction should be conducted with individuals and small groups rather than with the total class. (2) Children should actively engage with learning materials rather than passively listen to explanations. (3) Teachers should do more asking and less telling. (4) Discussions should be designed to encourage speculation and ideas rather than factual answers. (5) Self-direction should prevail rather than teacher dominance. (6) Verbal interaction among children should be encouraged.

The observational data for High/Scope were collected from a middle-sized southern town of approximately 20,000 population near a large military base. The overall Follow Through enrollment is 379, of which the classroom observation sample is 351. The following data refer to those classes observed in this site only.

2) Observations--Observational data are used to construct a description of the classroom environment, activities engaged in, materials used within activities, teaching processes, and child processes over the four days of observations in the High/Scope (HS) model. The data referred to are taken from the tables of mean frequency of occurrence and standard deviations on the total list of variables that appears in Appendix L-1 (Child-Focused Observations) and Appendix L-2 (Adult-Focused Observations). The superscripts c and a after the variable numbers that are cited refer to whether the data are found in the child-focused observations (c) in Appendix L-1, or the adult-focused observations (a) in Appendix L-2. The data reported here were collected at one site only and cannot be generalized to other sites.

Environment--The HS child's classroom is furnished with movable tables and chairs that can be arranged in any desired manner (OSF 17^a). Teachers only occasionally make seat assignments; they usually allow the child to make his own choice of where to sit (OSF 19^a, 20^a). Work groups are normally predefined, although the child is given freedom during some activities to join whatever group he prefers (OSF 21^a, 22^a).

Displays in the room include the child's own art work, photographs of the child and his classmates, pictures of various ethnic groups, and announcements of community events that are of interest to the child or his parents (OSF 29^a - 32^a).

Activities--When variable numbers are not cited, the data referred to in this section are displayed on Table VII-13 included as part of the text.

Table VII-13

GRADE DIFFERENCES ON SELECTED CCL VARIABLES: HIGH/SCOPE
(Means and standard deviations per COP, computer over four days.)*

	Grade Level/Stream							
	Kindergarten		First Grade/ek		Second Grade/ef		Third Grade/ef	
Variable	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Math	.19	.40	.30	.46	.46	.50	.40	.49
Reading	.34	.48	.37	.48	.50	.50	.58	.50
Social studies	--	--	--	--	.08	.27	.11	.31
Science	.12	.32	.14	.35	.09	.29	.13	.34
All academic activities	.65	.92	.81	1.05	1.14	1.13	1.22	1.13
Games	.13	.33	.13	.34	.07	.25	.15	.36
Arts and crafts	.16	.37	.25	.43	.32	.47	.15	.36
Domestic arts	.04	.20	--	--	.02	.13	.01	.10
Blocks and trucks	.12	.32	.06	.25	--	--	.01	.12
Dolls	.10	.30	.04	.19	--	--	.05	.21
Teacher in any academic activity								
With one child	.04	[illegible]	.07	.25	.11	.33	.11	.33
With two children	.01	.11	.03	.17	.05	.22	.12	.35
With small group	.20	.40	.25	.43	.65	.83	.62	.76
With large group	.01	.09	.03	.18	.06	.24	.07	.26
Teacher with one child in any activity	.06	.24	.07	.26	.14	.36	.13	.35
Independent groupings								
One child	.71	1.50	.90	1.89	1.26	1.77	1.14	2.05
Two children	.25	.67	.28	.84	.39	.75	.67	1.27
Small group	.35	.79	.45	.94	.49	.87	.47	.77
Large group	.13	.36	.19	.42	.07	.27	.08	.28
Children in any academic activity	.77	2.30	1.89	3.98	2.32	3.74	4.14	6.33

Grade	Classrooms per Grade	COPs per Grade
K	4	268
1/ek	4	281
2/ef	4	288
3/ef	4	283

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*For example, at the K level, one out of every five CCL observations recorded a math activity in progress; at the 1/ek level, one out of every three CCL observations recorded a math activity in progress.

In all four grade levels. kindergarten through third, the HS child's curriculum is primarily academic. Language development and reading activities predominate, and math activities are next in frequency. Social studies are introduced in the second grade, but science is an important element of the program at all grade levels.

Nonacademic activities always include games and arts and crafts; domestic arts, blocks and trucks, and dolls, dress-up are participated in at most grade levels. Group time is an important part of the child's school day--it is during group time that he makes his plans for the day and shares with others what he has accomplished (CCL 2[a]). The child can enjoy a wide variety of activities in the HS classroom (CCL 14[a]).

When the HS child of any grade level is with his teacher in an academic activity, he is often a member of a small group; he also meets with the teacher by himself or with one other child for academic instruction.

If he is working independent of the adults in the room, the HS child works primarily alone or with one other child.

Materials--The HS child uses texts and workbooks less often than children in other models (CCL 28[a]). Adults make use of language experience charts and games in his language instruction, and he uses manipulable concrete objects and games in math activities (CCL 29[a], 31[a], 32[a]). Science and audio-visual equipment are also available and used (CCL 30[a], 33[a]).

Teaching Processes--Observational data collected on the Five-Minute Observation form during adult-focused observations are mainly used to describe teaching processes in this section. These data are found in Appendix L-2 (Adult-Focused Observations).

Adults' interactions with the child are primarily on a one-to-one basis (FMO 61[a], 65[a], 66[a], 73[a] - 76[a]). They ask more open-ended questions than do the adults in other models (FMO 79[a]) and give the child less formal instruction (FMO 81[a]). They use objects for demonstration or instruction more often than do the adults in most other models (FMO 82[a]). Interactions of academic content occur less frequently in the HS child's classroom than they do in the classrooms of the other sponsors (FMO 116[ca]).

Feedback to the child (Table VII-14) is more likely to be in the form of acknowledgment or positive correctives that guide the child to an acceptable response than in the form of praise (FMO 88[a], 92[a], 97[a]-99[a]).

Table VII-14

ADULT FEEDBACK TO CHILDREN: HIGH/SCOPE

Variable	For Behavior	$\bar{X}$ for FMO
FMO 90	Praise	0.05
FMO 94	Non-task-related acknowledgment	0.40
FMO 93	Positive corrective	1.01
FMO 101	Negative corrective	0.15
FMO 102	Firm corrective	0.09
	For Task-Related Activity	
FMO 89	Praise	1.20
FMO 93	Acknowledgment	3.12
FMO 99	Positive corrective	2.26
FMO 103	Negative corrective	0.07
	All	
FMO 104	All feedback	9.58

Child Processes--The HS child is highly interactive with both adults and other children (FMO 1^c - 6^c, 8^c - 12^c). He asks questions, responds, and is attentive to others, and he exchanges numerous productive statements with his classmates (FMO 16^c - 19^c, 38^c, 44^c). He does not engage in self-instruction as much as children in other models; however, when he does work alone, he uses objects more often than they do (FMO 25^a, 26^a).

He expresses more negative feelings than do children in other models; still, in his own classroom his positive behavior outweighs the negative (FMO 49^c - 56^c).

The HS child's imagination is well developed and evidence of it occurs frequently in his conversations with others (FMO 60^a). He cooperates on mutual tasks with other children to a greater extent than do the children in other models (FMO 58^a).

h. Florida Parent Education Model--U. Florida

1) Description of the Model--As the name of this model implies, its primary focus rests on educating parents to participate directly in the education of their children and motivating them to build a home environment that furthers better performance on the part of the child in both school and life and to participate directly and indirectly in building a better school environment for the child. Basic to the model is recognition of the fact that parents are a key factor in the emotional and intellectual growth of their children and that they are uniquely qualified to guide and participate in their children's education.

The U. Florida model is designed to work directly in the home. It is not classroom-oriented in the traditional sense of having a preset curriculum or prescribed teaching strategies. Home learning activities are developed that are expected to allow home and school to work as instructional partners. Thus, responsibility for curriculum development should reside in the community, and the curriculum should be the product of parent and school staff cooperation.

Paraprofessionals should play an especially significant role in this model, working in the home and in the classroom. Mothers of project children are trained both as teacher auxiliaries and as educators of other parents and are assigned two to a classroom. They are expected to work half-time assisting the teacher and half-time making home visits to each child's home once a week, demonstrating and teaching tasks that may increase the child's intellectual competence and personal and social development.

The teacher is expected to supervise the classroom activity of the parent educator and assist in planning and carrying out the assignments in the home. When parents are invited into the classroom, they are encouraged to participate in the instruction actively rather than passively.

The U. Florida site observed is a southern city with a population of approximately 120,000. The total Follow Through enrollment is 912, of which the classroom observation sample is 356. The following data refer to those classes observed in this site only.

2) Observations--Observational data are used to construct a description of the classroom environment, activities engaged in, materials used within activities, teaching processes, and child processes over the four days of observations in the University of Florida (UF) model. The data referred to are taken from the tables of mean frequency of occurrence

and standard deviations on the total list of variables that appears in Appendix L-1 (Child-Focused Observations) and Appendix L-2 (Adult-Focused Observations). The superscripts c and a after the variable numbers that are cited refer to whether the data are found in the child-focused observations (c) in Appendix L-1, or the adult-focused observations (c) in Appendix L-2. The data reported here were collected at one site only and cannot be generalized to other sites.

Environment--The classroom of the UF child is very likely a single, self-contained room (OSF 34^{ca}, 35^{ca}). It utilizes tables and chairs that can be moved about to form whatever arrangement is desired (OSF 17^{ca}, 18^{ca}). His teacher assigns the child seating locations and working groups for some activities during the day; for other activities, the child can select his own place and group (OSF 18^{ca} - 21^{ca}). The child's own art work is exhibited in the room (OSF 29^{ca}). There may be photographs of himself and his classmates, pictures of various ethnic groups, or announcements of community events displayed as well (OSF 30^{ca}-32^{ca}).

Activities--When variable numbers are not cited, the data referred to in this section appear on Table VII-15.

At all grade levels, the UF child's curriculum is focused predominantly on language development activities. Arts and crafts activities occur next most often, and math is third in importance. Group time is also a frequent daily occurrence (CCL 2^{a}).

In the first and second grades, the child is usually a member of a small group when he is instructed by the teacher in academic activities. As a third grader, however, academic activities with his teacher occur equally often in small and large groups. He seldom works alone with the teacher.

When the child works independently of adults, he works alone more often than he works in small groups as a first grader. As he progresses through second and third grade, he works alone less and in small groups more.

Materials--Language experience charts, audio-visual equipment, and manipulable concrete objects are used more in the UF child's instruction than they are in other models (CCL 29^{ca}, 30^{ca}, 32^{c}). Games are also used in his math and language activities (CCL 31^{ca}).

Table VII-15

GRADE DIFFERENCES ON SELECTED CCL VARIABLES: U. FLORIDA

(Means and standard deviations per COP, computer over four days.)[*]

	Grade Level/Stream							
	First Grade/ef		Second Grade/ef		Third Grade/ef		Mixed	
Variable	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Math	.38	.49	.34	.47	.22	.42	—	—
Reading	.69	.47	.63	.48	.62	.49	—	—
Social studies	—		.01	.08	.03	.18	—	—
Science	.07	.26	.14	.35	.03	.16	—	—
All academic activities	1.15	.76	1.11	.67	.90	.56	—	—
Games	.18	.39	.06	.23	—	—	.10	.30
Arts and crafts	.52	.50	.31	.46	.56	.50	.39	.49
Domestic arts	—	—	—	—	.01	.12	—	—
Blocks and trucks	.03	.16	.01	.08	—	—	—	—
Dolls	—	—	—	—	—	—	—	—
Teacher in any academic activity								
With one child	.01	.12	.04	.20	.02	.15	.01	.12
With two children	.02	.15	.07	.25	.06	.25	.03	.17
With small group	.54	.51	.59	.56	.34	.49	.50	.50
With large group	.11	.31	.07	.25	.33	.47	.06	.23
Teacher with one child in any activity	.02	.15	.06	.26	.03	.16	.04	.26
Independent groupings								
One child	2.13	2.41	1.96	1.98	1.21	1.53	1.38	1.86
Two children	.77	1.06	.86	1.08	.69	.93	.68	.93
Small group	1.86	1.68	2.11	1.70	2.19	1.71	.97	1.21
Large group	.05	.21	.09	.29	.07	.26	.03	.17
Children in any academic activity	9.71	8.24	12.91	9.94	10.09	8.30	5.50	6.20

Grade	Classrooms per Grade	COPs per Grade
1/ef	4	216
2/ef	4	288
3/ef	4	287

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[*] For example, at the 1/ef and 2 grade levels, approximately one out of every three CCL observations recorded a math activity in progress; at the 3 grade level, approximately one out of every five CCL observations recorded a math activity in progress.

Teaching Processes--Observational data collected on the Five-Minute Observation form during adult-focused observations are mainly used to describe teaching processes in this section. These data are found in Appendix L-2, Adult-Focused Observations.

The majority of the UF child's interactions with an adult are on a one-to-one basis (FMO 61[a]-64[a], 73[a]). He is frequently given direct instructions by the adults (FMO 81[a]) and objects are often used both during academic and nonacademic activities (FMO 84[a], 118[a]).

The greatest proportion of the adults' interactions with the child is in the form of feedback (FMO 104[a]). Some of it is praise and acknowledgment (FMO 88[a], 92[a]); most of it is corrective (FMO 97[a]). Corrective feedback is almost always positive; in his classroom negative correctives are rare (FMO 98[a], 99[a], 101[a], 103[a]). See Table VIII-16 for values.

Table VII-16

ADULT FEEDBACK TO CHILDREN: U. FLORIDA

Variable	For Behavior	$\bar{X}$ for FMO
FMO 90	Praise	0.01
FMO 94	Non-task-related acknowledgment	0.28
FMO 98	Positive corrective	1.61
FMO 101	Negative corrective	0.15
FMO 102	Firm corrective	0.29
	For Task-Related Activity	
FMO 89	Praise	0.53
FMO 93	Acknowledgment	2.54
FMO 99	Positive corrective	2.81
FMO 103	Negative corrective	0.002
	All	
FMO 104	All feedback	9.60

Child Processes--Most of the UF child's interactions are with the other children in his classroom (FMO 1^c-3^c; 5^c, 6^c; 8^c, 9^c). These interactions consist mainly of the exchange of general and task-related comments (FMO 33^c, 34^c; 38^c, 39^c). The greatest proportion of his time, however, is spent in self-instruction (FMO 23^c). While most of this activity is in academic areas, he frequently uses objects in both academic and nonacademic self-instruction (FMO 24^c-26^c). He is highly task-persistent in his work (FMO 29^c).

The UF child is happy (FMO 49^a). Although he does express negative feelings, they are comparatively rare (FMO 52^a-54^a, 56^a).

i. EDC Open Education Program

1) Description of the Model--The EDC Follow Through approach is a program designed to help communities generate the resources to implement open education. This model is based on principles EDC considers relevant for the education of all children. EDC believes that learning is facilitated by a child's active participation in the learning process, that it takes place best in a setting where there is a range of materials and problems to investigate, and that children learn in many different ways and thus should be provided with many different opportunities and experiences. In other words, the ability to learn depends in part on the opportunities to learn provided by the educational setting.

The classroom should be divided into several interest areas for construction activities, science, social studies, reading, math, art, and music. Any or all of these interest areas may be used by children or adults during the day. In addition, traditional subjects may be combined with any one interest area. Whether or not interest areas are physically set up, the open classroom is considered implemented when there is interaction with subject matter and purposeful mobility and choice of activities on the part of the children. The intent of this approach is to encourage the development of children's problem-solving skills, of their ability to express themselves both creatively and functionally, their ability to respect their own thoughts and feelings, and their ability to take responsibility for their own learning.

The EDC site observed is in an eastern city near a large metropolitan center. Its population is approximately 150,000. Overall Follow Through enrollment is 320, of which the classroom observation sample is 300. The following data refer to those classes observed in this site only.

2) Observations--Observational data are used to construct a description of the classroom environment, activities engaged in, materials used within activities, teaching processes, and child processes over the four days of observations in the Education Development Center (ED) model. The data referred to are taken from the tables of mean frequency of occurrence and standard deviations on the total list of variables that appears in Appendix L-1 (Child-Focused Observations) and Appendix L-2 (Adult-Focused Observations). The superscripts c and a after the variable numbers that are cited refer to whether the data are found in the child-focused observations (c) in Appendix L-1, or the adult-focused observations (a) in Appendix L-2. The data reported here were collected in one site only and cannot be generalized to other sites.

Environment--The ED classroom might be open or self-contained (OSF 34^a, 35^a); in either case, it is furnished with tables and chairs that can be moved about to form desired arrangements. The child's teacher assigns him to a seat and work group for some activities during the day, but he is allowed to choose his own place and group on other occasions (OSF 19^a - 22^a). On the walls the child sees displayed photographs of himself and his classmates, pictures of various ethnic groups, and announcements of community events. His own art work is also exhibited (OSF 17^a, 18^a; 29^a - 32^a).

Activities--When variable numbers are not cited, the data referred to in this section appear on Table VII-17.

The ED child participates in a wider range of activities than children in any other model (CCL 14^a). Games, arts and crafts, domestic arts, blocks and trucks, dolls and dress-up, and active play occur regularly (CCL 8^a-13^a). As he progresses through the grades, these nonacademic activities occur less frequently and reading and math activities occur more frequently, but participation in a variety of activities always remains high (see Table VII-17).

When the teacher directs him in academic activities, he is generally with a small group. He spends proportionately little time with the teacher on an individual basis. When the child works independent of adults, he works alone and with one other child more often than he works in a small group, although occurrences of small groups independent of adults are frequent (see Table VII-17).

Materials--The ED child uses science equipment in his studies more often than he does any other educational aid, including

Table VII-17

GRADE DIFFERENCES ON SELECTED CCL VARIABLES: EDC
(Means and standard deviations per COP, computed over four days.)[*]

	Grade Level/Stream					
	Kindergarten		First Grade/ek		Second Grade/ek	
Variable	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Math	.37	.48	.40	.49	.54	.50
Reading	.49	.50	.61	.49	.72	.45
Social studies	--		.02	.15	.02	.13
Science	.05	.22	.01	.11	.08	.27
All academic activities	.92	.81	1.04	.79	1.36	.87
Games	.33	.47	.15	.36	.11	.31
Arts and crafts	.52	.50	.30	.46	.50	.50
Domestic arts	.11	.31	.04	.20	.02	.13
Blocks and trucks	.46	.50	.34	.47	.38	.49
Dolls	.30	.46	.28	.45	.03	.16
Teacher in any academic activity						
With one child	.03	.16	.09	.29	.06	.24
With two children	.03	.17	.05	.22	.04	.21
With small group	.25	.44	.19	.40	.27	.44
With large group	.03	.18	.16	.38	.10	.30
Teacher with one child in any activity	.07	.25	.12	.32	.07	.26
Independent groupings						
One child	1.43	1.78	.83	1.30	1.29	1.42
Two children	1.10	1.31	.80	1.15	1.41	1.32
Small group	1.47	1.31	1.42	1.31	2.11	1.31
Large group	.10	.32	.32	.54	.17	.37
Children in any academic activity	2.55	3.72	5.59	6.76	7.46	7.12

Grade	Classrooms per Grade	COPs per Grade
K	4	236
1/ek	4	268
2/ek	4	272

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[*] For example, at the K level, approximately one out of every three CCL observations recorded a math activity in progress; at the 2 grade level, one out of every two CCL observations recorded a math activity in progress.

texts and workbooks (CCL 33[a]). He uses games to enhance his math and reading lessons (CCL 31[a]). Language experience charts are used in reading and language development activities and concrete objects in math and social studies instruction (CCL 29[a], 32[a]).

Teaching Processes--Observational data collected on the Five-Minute Observation form during adult-focused observations are used to describe teaching processes in this section. These data are found in Appendix L-2 (Adult-Focused Observations).

Because the child often works with one other child (CCL 50[ca]), interactions with the adults in his classroom occur more frequently in that grouping than they do in the classrooms of other sponsors (FMO 62[a], 67[a], 68[a]); however, adults interact with him primarily on a one-to-one basis (FMO 61[a], 65[a], 73[a]).

His interactions with adults are mainly in the form of receiving instruction, over half of which is in academic activities (FMO 81[a], 82[a]). Compared to children in classrooms of other sponsors, a relatively high proportion of the questions he is asked are open-ended (FMO 78[a], 79[a]).

Because of the wide range of activities that take place, the adults in his classroom move about more than adults in other models (FMO 86[a]). Their interactions among themselves are more frequent than their interactions with the children (FMO 120[a]).

Most feedback is given in the form of correctives (Table VII-18), a high proportion of which is positive and given to correct misbehavior (FMO 97[a], 98[a]). Task-related feedback is usually in the form of acknowledgment or praise (FMO 89[a], 93[a], 100[a]).

Child Processes--Observational data collected on the Five-Minute Observation form during child-focused observations are used primarily to describe child processes in this section. These data are found in Appendix L-1 (Child-Focused Observations).

The ED child talks to other children more than he talks to the adults in his room (FMO 1[c], 5[c]). His interactions are primarily with one other child, although he is observed in exchanges with two children and with small groups more frequently than are children in other models (FMO 8[c]-12[c]). His conversation with other children is mainly in the form

Table VII-18

ADULT FEEDBACK TO CHILDREN: EDC

Variable	For Behavior	$\bar{X}$ per FMO
FMO 90	Praise	0.04
FMO 94	Non-task-related acknowledgment	0.39
FMO 98	Positive corrective	1.22
FMO 101	Negative corrective	0.24
FMO 102	Firm corrective	0.40
	For Task-Related Activity	
FMO 89	Praise	0.76
FMO 93	Acknowledgment	1.10
FMO 99	Positive corrective	0.28
FMO 103	Negative corrective	0
	All	
FMO 104	All feedback	5.15

of productive statements and comments in which he often shares his away-from-school experience and shows a great amount of imagination (FMO 33^c, 34^c; 38^c, 39^c; 59^c, 60^c). He asks few questions and gives little feedback to others (FMO 18^c, 40^c), although he does instruct other children frequently (FMO 27^c).

His interactions with adults commonly take the form of comments and questions, and he responds to theirs (FMO 18^c, 19^c, 32^c). Occasionally (though more than children in other models) he gives an elaborated or extended response to their open-ended questions (FMO 22^{ca}).

The child is very often not interacting with others, during which time he is engaged in nonverbal activities (FMO 7^c, 47^c). Self-instruction, at which he is task-persistent, consumes a high proportion of his noninteractive periods (FMO 23^c, 29^c). He cooperates on a mutual task with others, moves around the classroom, and watches or listens to others (FMO 48^c, 43^c-45^c).

He ranks high among the children in all models in the expression of both positive and negative feelings (FMO 49^c-56^c).

j. Individualized Early Learning Program--U. Pittsburgh

1) Description of the Model--The most important aspects of this model are a planned learning environment and individualized instruction. The first phase or early learning part of the program is prepared in several areas identified as essential to development of confidence in later learning. These curriculum areas include: general motor development, classification, quantification, perceptual development, language development (within the previously listed curriculum areas), and skills in organizing and carrying out learning tasks. The second phase of the individualized program is known as Individually Prescribed Instruction. The program content includes the subject areas of reading and mathematics. Both subject areas are designed to build upon the skills and competences developed in the early learning portion of the program.

The curriculum is intended to specify skills that children need to enter the curriculum at any point and to obviate wasting time on skills he already has. This is to be accomplished by testing for each objective in the sequence of teaching and confirming that prerequisite skills have been acquired. A special effort should be made to help children develop the self-management skills necessary to such a curriculum. An exploratory program under development is expected to provide opportunities for children to apply and extend their skills and concepts in a relatively informal and open-ended environment that should encourage children to inquire. Teachers should be especially trained in such skills as tutoring, testing, and diagnosing children. In practice, children should receive individual assignments; as they complete these assignments they should raise their hands to have a teacher check their work. The children should receive immediate feedback from the adults and then continue with their work.

The U. Pittsburgh site observed is a small middlewestern town in the North Central region with a population of approximately 5,500. Overall Follow Through enrollment is 592, of which the classroom observation sample is 274. The following data refer only to those classes observed in this site.

2) Observations--Observational data are used to construct a description of the classroom environment, activities engaged in, materials used within activities, teaching processes, and child processes over the four days of observations in the University of Pittsburgh model. The data referred to are taken from the tables of mean frequency of occurrence and standard deviations on the total list of variables that appears in Appendix L-1 (Child-Focused Observations) and Appendix L-2 (Adult-Focused

Observations). The superscripts c and a after the variable numbers that are cited refer to whether the data are found in the child-focused observations (c) in Appendix L-1, or in the adult-focused observations (a) in Appendix L-2. The data reported here were collected at one site only and cannot be generalized to other sites.

Environment--The UP child's classroom is furnished with tables and chairs that can be moved about and rearranged as desired (OSF 17^a). Displays consist of photographs of the child and his classmates, his own art and craft products, pictures of various ethnic groups, and other exhibits of interest to him. Announcements of community events are also posted.

For most of the activities in which he engages, the adult assigns the child a seat and work group, although there are some activities for which he is allowed to choose his own place and group (OSF 19^a - 22^a).

Activities--When variable numbers are not cited, the data referred to appear on Table VII-19.

At the kindergarten level, the child participates in arithmetic more frequently than other activities; language activities were observed less often at this level.* At the first and second grade levels, the reverse is true: the child engages in more reading and less math. In kindergarten, his participation in nonacademic activities such as games, domestic arts, blocks and trucks, and dolls, is higher than it is as a first and second grader. Arts and crafts are important in the child's daily schedule in all grades.

The UP child receives academic instruction from the teacher on a one-to-one basis in kindergarten and first grade. As a second grader he receives his academic instruction more often in large groups. Small groups with the teacher in academic activities occur less frequently than

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*Although the CCL data (CCL27^a) shows UP to be one of the two lowest in the ranking of models in academic activities, the FMO data (FMO 116^a) indicate that the occurrence of academic interactions ranks on a par with most of the other models. Thus it can be assumed that reading and math instruction is being carried on while children are engaged in other activities.

Table VII-19

GRADE DIFFERENCES ON SELECTED CCL VARIABLES: U. PITTSBURGH

(Means and standard deviations per COP, computed over four days.)*

	Grade Level/Stream					
	Kindergarten		First Grade/ek		Second Grade/ek	
Variable	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Math	.47	.50	.38	.49	.32	.47
Reading	.13	.34	.48	.50	.45	.50
Social studies	.09	.28	.04	.19	.09	.29
Science	.02	.13	.01	.10	.03	.16
All academic activities	.71	.60	.91	.53	.88	.47
Games	.09	.28	.01	.09	.03	.18
Arts and crafts	.28	.45	.11	.31	.14	.35
Domestic arts	.02	.14	--		--	--
Blocks and trucks	.08	.27	.05	.21	.01	.10
Dolls	.06	.24	.02	.13	.02	.15
Teacher in any academic activity						
With one child	.36	.48	.41	.49	.25	.46
With two children	.02	.16	.01	.12	.01	.10
With small group	.02	.22	.13	.34	.16	.36
With large group	.13	.34	.23	.42	.35	.50
Teacher with one child in any activity	.38	.49	.41	.49	.25	.47
Independent groupings						
One child	1.13	1.80	.37	1.01	.82	1.42
Two children	.41	.87	.34	.81	.36	.80
Small group	1.32	1.49	1.61	1.90	1.21	1.74
Large group	.11	.33	.18	.38	.20	.40
Children in any academic activity	5.62	7.55	9.81	9.37	7.87	8.48

Grade	Classrooms per Grade	COPs per Grade
K	4	247
1/ek	4	274
2/ek	4	280

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*For example, at the K level, almost one out of every two CCL observations recorded a math activity in progress; at the 2 grade level, one out of every three CCL observations recorded a math activity in progress.

they do in other models. On the other hand, when the child works independently of adults, he is more likely to be working with a small group than alone. Incidences of two children working together independently of an adult occur frequently.

Materials--The UP child uses texts, workbooks, and other symbolic materials in his academic activities, as well as science equipment, and manipulable concrete objects. Language experience charts, audiovisual equipment, and games are used comparatively infrequently in his instruction (CCL28[a] - 33[a]).

Teaching Processes--Observational data collected on the Five-Minute Observation protocol during adult-focused observations are used to describe teaching processes in this section. These data are found in Appendix L-2, Adult-Focused Observations.

Adults in the UP classroom primarily interact with the child on a one-to-one basis (FMO 61[a], 73[a]). Their interactions with him are in the form of requests/commands, direct questions, instruction, and feedback (FMO 78[a], 79[a], 81[a]). The sequence of direct question followed by academic response followed by feedback is a common method of instruction in academic activities (FMO 105[a]).

Feedback is given freely to the child. In task-related activities, he receives praise, acknowledgment, and positive corrective feedback regularly and often (FMO 89[a], 93[a], 99[a]). Negative correctives are rarely given him either for his behavior or for task-related responses (see Table VII-20).

Adults in his classroom express fewer negative feelings than do the adults in other models (FMO 111[a], 112[a]). They exhibit positive feelings to a greater extent than negative, but only a moderate amount in the scale of models (FMO 109[a], 110[a]).

Table VII-20

ADULT FEEDBACK TO CHILDREN: U. PITTSBURGH

Variable	For Behavior	$\bar{X}$ per FMO
FMO 90	Praise	0.09
FMO 94	Non-task-related acknowledgment	0.15
FMO 98	Positive corrective	1.34
FMO 101	Negative corrective	0.02
FMO 102	Firm corrective	0.12
	For Task-Related Activity	
FMO 89	Praise	2.13
FMO 93	Acknowledgment	4.88
FMO 99	Positive corrective	3.33
FMO 103	Negative corrective	0.01
	All	
FMO 104	All feedback	12.32

Child Processes--Observational data collected on the Five-Minute Observation form during child-focused observations are used to describe child processes in this section. These data are found in Appendix L-1, Child-Focused Observations.

The UP child interacts with the adults in his classroom more often than he does with other children (FMO 1^c, 5^c). His interactions with the adults are often self-initiated and sometimes responsive (FMO 2^c, 19^c). His interactions with his peers are usually an exchange with one other child (FMO 8^c - 12^c) consisting of instruction, general comments, and productive statements (FMO 27^a, 28^a; 33^c, 34^c; 38^c, 39^c); he asks proportionately few questions (FMO 18^c), but directs many requests or commands to others (FMO 15^c). It is possible that when he has finished a task, he requests an adult to check his work--this is the usual UP procedure and it would probably be reflected in this variable.

A large proportion of his time is spent in nonverbal activity (FMO 47^c) and much of it consists of self-instruction, with emphasis on academic activities (FMO 23^c, 24^c). Observing or listening to other children, adults, or machines is an activity he engages in frequently (FMO 43^c).

Like the adults in his classroom, he expresses comparatively little positive or negative feeling (FMO 49^c - 56^c).

k. Interdependent Learning Model*

1) Description of the Model--The Interdependent Learning Model (ILM) is a transactional approach to education that focuses on the learner as an individual and on the social interactional context within which learning occurs. In its design, it contains elements of both the open classroom and individualized program approaches, but is distinguished by its strong focus on small group interaction as the basic structure in which learning takes place. This emphasis derives from the conviction that a child gains most of his knowledge from interaction within his family and with his peers rather than at a desk. According to the theory on which this model is based, if education is truly preparation for life, it needs to be more lifelike in its structure.

ILM advocates an emergent approach to language development, in which communication rather than language per se is stressed. According to the model, a child develops language proficiency by being presented with situations of increasing complexity that motivate him to express himself verbally. Language emerges from situations rather than from instruction. Games and gamelike activities play a major role in bringing this about. In introducing new games the teacher follows a strategy of teaching through participation. She should demonstrate how to play by actually playing the game with a group, verbalizing what is being done and why, and serving as a model, rather than actually teaching. Ultimately she transfers much of the control to the game rules demonstrated and encourages the children to direct their own learning.

The advantages gained from games further define the philosophy of this approach. Games can be played by individuals with different levels of competence, with the more advanced helping the others. Games can provide feedback to the child, both by way of the materials themselves and from the other participants; the child can monitor the "correctness" of his own response as well as that of others. Games can approximate events in "real life" without entailing the risk factor. With the benefit of game rules, small groups can be quickly formed and be sustained with minimal adult direction. Thus, the model expects children to assume increasing responsibility for making choices and managing their own behavior. The small group approach is considered just as appropriate for the teaching role as the learning role.

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*NYU in previous reports.

The ILM site observed is in a southern city with a population of approximately 500,000. Overall Follow Through enrollment is 1414, of which the classroom observation sample is 286. The following data refer only to the classes observed in this site.

2) Observations--Observational data are used to construct a description of the classroom environment, activities engaged in, materials used within activities, teaching processes, and child processes over the four days of observations in the Interdependent Learning Model (ILM). The data referred to are taken from the tables of mean frequency of occurrence and standard deviations on the total list of variables that appears in Appendix L-1 (Child-Focused Observations) and Appendix L-2 (Adult-Focused Observations). The superscripts c and a after the variable numbers that are cited refer to whether the data are found in the child-focused observation (c) in Appendix L-1, or in the adult-focused observations (a) in Appendix L-2. The data reported here were collected at one site only and cannot be generalized to other sites.

Environment--The ILM classroom might be open or self-contained (OSF 34^a, 35^a), but in either case it is furnished with tables and chairs that can be moved about as desired (OSF 17^a). The child is usually assigned to a seat and work group, but in some activities he is free to choose his own place and group with which to work (OSF 19^a - 22^a). The child's own art work is on display and there probably will be photographs of him and his classmates, as well as pictures of various ethnic groups on the walls (OSF 29^c - 31^c). Announcements of community events will be posted and other exhibits of interest to the child will be available from time to time (OSF 32^a, 33^a).

Activities--When variable numbers are not cited, the data referred to in this section appear on Table VII-21.

Table VII-21

GRADE DIFFERENCES ON SELECTED CCL VARIABLES: ILM
(Means and standard deviations per COP, computed over four days.)*

Variable	Grade Level/Stream Kindergarten Mean	 Standard Deviation	 First Grade/ek Mean	 Standard Deviation	 Second Grade/ek Mean	 Standard Deviation
Math	.21	.41	.24	.43	.22	.41
Reading	.42	.49	.61	.49	.67	.47
Social studies	--	--	.05	.21	.02	.13
Science	.04	.20	.01	.08	.06	.24
All academic activities	.67	.75	.90	.65	.96	.60
Games	.24	.43	.11	.32	.13	.34
Arts and crafts	.26	.44	.12	.33	.15	.36
Domestic arts	.02	.13	--	--	.01	.08
Blocks and trucks	.19	.39	.03	.16	.01	.12
Dolls	.17	.38	.01	.10	--	--
Teacher in any academic activity						
With one child	.02	.13	.12	.33	.05	.22
With two children	.04	.21	.02	.15	.10	.30
With small group	.23	.42	.37	.48	.50	.58
With large group	.07	.26	.08	.28	.07	.26
Teacher with one child in any activity	.02	.14	.15	.35	.06	.24
Independent groupings						
One child	.69	1.24	1.36	1.64	.90	1.23
Two children	.66	1.05	.76	1.08	1.13	1.34
Small group	.95	1.13	1.37	1.33	2.07	1.42
Large group	.08	.28	.08	.27	.03	.17
Children in any academic activity	1.30	2.80	6.72	7.00	10.42	7.93

Grade	Classrooms per Grade	COPs per Grade
K	4	280
1/ek	4	306
2/ek	4	288

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*For example, at the K level, one out of every five CCL observations recorded a math activity in progress; at the 1/ek level, one out of every four CCL observations recorded a math activity in progress.

At the kindergarten level, the ILM child participates in language development activities more frequently than any other one activity, but the range of activities in which he takes part is wide. As he gets older, more emphasis is placed on reading and math activities, although his participation in games and arts and crafts remains high.

At all grade levels, he usually works in small groups. In the first grade, however, he works with the teacher on a one-to-one basis in all activities to a greater degree than in the other grades, and when he is working independent of any adult, he works alone as often as he does with small groups. In all three grades, he works independently, with one other child.

Materials--The ILM child uses texts, workbooks, and other symbolic materials, as well as audiovisual equipment in his reading, math, social studies, and science activities (CCL 28[a], 30[a]). His teacher frequently uses language experience charts in his language development lessons, and games are used significantly more than in any other model in math and reading instruction (CCL 28[a], 29[a], 31[a]).

Teaching Processes--Observational data collected on the Five-Minute Observation form during adult-focused observations are used to describe teaching processes in this section. These data are found in Appendix L-2 (Adult-Focused Observations).

Adults in the ILM child's classroom interact with him primarily on a one-to-one basis (FMO 61[a], 73[a]) within his small group (CCL 37[a]), although some of their communication is directed to him as part of a small or large group (FMO 63[a], 64[a]). These interactions consist mainly of requests/commands, questions, instruction, and feedback (FMO 77[a] - 79[a], 81[a], 104[a]). Although less frequent than the interactions just mentioned, ILM adult comments and productive statements are, nevertheless, highest in the rank ordering of models (FMO 85[a], 96[c]).

Also, compared to other models, praise is a frequent form of feedback to the ILM child (Table VII-22), both for behavior and for task-related responses (FMO 88[a] - 90[a]). The child receives an equal amount of acknowledgment for his behavior, but far more is offered him for task-related responses (FMO 93[a], 94[a]). Corrective feedback is usually positive; the few negative correctives that are directed to him are chiefly for misbehavior (FMO 98[a] - 101[a], 103[a]).

Table VII-22

ADULT FEEDBACK TO CHILDREN: ILM

Variable	For Behavior	$\bar{X}$ per FMO
FMO 90	Praise	0.19
FMO 94	Non-task-related acknowledgment	0.19
FMO 98	Positive corrective	1.48
FMO 101	Negative corrective	0.06
FMO 102	Firm corrective	0.18
	For Task-Related Activity	
FMO 89	Praise	1.66
FMO 93	Acknowledgment	2.74
FMO 99	Positive corrective	1.78
FMO 103	Negative corrective	0.01
	All	
FMO 104	All feedback	9.03

Adults in the ILM classroom are neither highly positive nor negative. The atmosphere suggested is one of relative calm (FMO 110^a, 112^a).

Child Processes--Highly interactive with the other children in his class (FMO 5^c, 6^c), the ILM child confines most of his interactions to exchanges between him and one other child (FMO 8^c, 9^c), although he does interact to a comparatively high degree (compared to other sponsors' children) with two children and small groups (FMO 10^c - 12^c). His communications with other children take the form of general comments, productive statements, and instruction (FMO 27^c, 28^c; 33^c, 34^c; 38^c, 39^c). These interactions [illegible] likely to take place during games as the children discuss the rules and teach each other. He asks few questions and gives little feedback to others (FMO 18^c, 36^c, 37^c, 40^c). He shows imagination in his verbal communications and shares his away-from-school experiences (FMO 59^c, 60^c).

A large proportion of his time is spent in nonverbal activity (FMO 47^c) consisting of self-instruction (often with objects), waiting for others or for a change of activity, watching or listening to others, and moving around the classroom (FMO 23^c, 25^c, 26^c, 43^c, 48^c).

He expresses positive feelings far more often than he does negative ones.

1. Language Development (Bilingual) Approach (Southwest Lab)

1) Description of the Model--The Southwest Lab model is a bilingual approach first developed for classrooms in which 75% of the pupils are Spanish-speaking, but it can be adapted by local school staffs for other population mixes. The model emphasizes language as the main tool for dealing with environment, expressing feelings, and acquiring skills, including nonlinguistic skills. Pride in cultural background and facility and literacy in both the native language and in English are central objectives.

The theory applied by the model is that learning in a second language is easier and more effective if the child first learns concepts in his native language Sequential procedures are developed to teach language patterns, and both teaching techniques and materials are designed to develop a hierarchy of thinking processes, specific terminology, and symbols. Drills, games, and exercises are intended to overcome individual linguistic problems.

The model stresses a high degree of adult-child contact. Teachers and aides should be constant language models, assuring the child he can succeed and reinforcing him with recognition and praise. Usually, kindergarten classes should be divided into three or four groups, with the teacher and aide working with one group while the other groups work independently. All groups are expected to cover the same material, but those progressing more rapidly are given expanded materials. In the first and second grade classes, the teacher presents a lesson to the whole group with visual aids and books, and then the children work in small groups or as individuals with enrichment materials.

The Southwest Lab site observed is in a large eastern urban center with a population of approximately 2,000,000. Follow Through enrollment for this program is 975, of which the classroom observation sample is 327. The following data refer to those classes observed in this site only.

2) Observations--Observational data referred to in this section are found in Appendix L-1 (Child-Focused Observations) and L-2 (Adult-Focused Observations). These data are used to construct a description of the classroom environment (from the OSF variables), activities engaged in and materials used (from the CCL variables), and teaching and child processes (from the FMO variables) in the Southwest Educational Development Laboratory (SE) model's classrooms observed over four days. The superscripts c and a after the cited variable numbers refer to whether the data are found in the child-focused observations (c) in Appendix L-1, or the adult-focused observations (a) in Appendix L-2. The data reported here were collected at one site only and cannot be generalized to other sites.

Environment--The SE child's classroom might be open or a single, self-contained room. It has tables and chairs that can be moved to form whatever arrangement is desired, or it might contain stationary desks in rows (OSF 34^a, 35^a; 17^a, 18^a). Generally the child is assigned a seat and work group by his teacher, but occasionally he is free to choose his own place and work group (OSF 19^a - 22^a). On the walls the child sees displayed pictures of various ethnic groups, photographs of himself and his classmates, announcements of community events, and other exhibits of interest to him (OSF 30^a - 33^a). His own art and craft productions are also on display (OSF 29^a).

Activities--When variable numbers are not cited, the data referred to in this section appear on Table VII-23.

Language development activities are the most important part of the SE child's curriculum at all grade levels observed.* At the kindergarten level, he engages in math, games, and arts and crafts in almost equal proportions, but as he progresses through the grades, the variety of, and his participation in, nonacademic activities diminishes while participation in academic activities increases.

When a teacher is directing his academic activity, the child is most frequently a member of a small group at the kindergarten

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*Although the CCL data show SE as lowest among the models in academic activities (CCL 27^a), the FMO data indicate that the occurrence of academic interactions ranks on a par with most of the other models (FMO 116^a). Thus it can be assumed that language and math instruction is being carried on while children are engaged in other activities.

Table VII-23

GRADE DIFFERENCES ON SELECTED CCL VARIABLES: SOUTHWEST LAB

(Means and standard deviations per COP, computed over four days.)*

	Grade Level/Stream					
	Kindergarten		First Grade/ek		Second Grade/ek	
Variable	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Math	.25	.44	.15	.36	.15	.36
Reading	.44	.50	.50	.50	.44	.50
Social studies	.05	.21	.07	.25	.09	.29
Science	.04	.20	--	--	.02	.16
All academic activities	.79	.86	.72	.46	.71	.51
Games	.23	.42	--	.06	--	--
Arts and crafts	.26	.44	.04	.20	.12	.33
Domestic arts	.05	.23	--	--	--	--
Blocks and trucks	.16	.36	--	--	--	.06
Dolls	.16	.36	.01	.09	--	.06
Teacher in any academic activity						
With one child	.01	.09	.01	.09	.01	.10
With two children	.01	.11	--	--	.01	.08
With small group	.31	.50	.09	.29	.01	.10
With large group	.08	.29	.49	.52	.41	.49
Teacher with one child in any activity	.04	.25	.01	.11	.02	.14
Independent groupings						
One child	.57	1.09	.05	.31	.41	1.11
Two children	.35	.81	.02	.15	.11	.41
Small group	.37	.74	.07	.27	.15	.51
Large group	.09	.31	.15	.36	.22	.46
Children in any academic activity	.62	1.78	1.30	3.30	1.27	3.52

Grade	Classrooms per Grade	COPs per Grade
K	4	259
1/ek	4	258
2/ek	4	282

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*For example, at the K level, one out of every four CCL observations recorded a math activity in progress; at the 1/ek and 2 grade levels, one out of about seven CCL observations recorded a math activity in progress.

level, whereas in the first and second grades, his teacher gives instruction mainly to large groups. He rarely meets alone with his teacher during academic activities.

As a kindergartner, the SE child works independent of adults--primarily alone, but he also carries on independent work with one other child or with a small group. This is also true when he is a third grader. At the second grade level, however, he works independently more often in a large group than in any other grouping arrangement.

Materials--Texts, workbooks, and other symbolic materials are often used in the child's instruction in academic activities, as well as science equipment. He uses games and concrete objects in his math activities, and he also uses games in his language studies. Audio-visual materials are available but he rarely uses them as instructional aids (CCL 28^a - 33^a).

Teaching Processes--Adults in the SE classroom interact most often with children in large groups; however, almost as often their interactions are with one child. In order of frequency, they give the child instruction, commands or requests, ask questions (a comparatively large number of which are open-ended), and offer feedback (FMO 77^a - 79^a, 81^a, 104^a). They also make general and task-related comments to him with some frequency (FMO 85^a, 96^a).

Feedback is offered the child mostly in the form of positive correctives, guiding him to a more acceptable response. Acknowledgment and praise are also given, mainly for his task-related responses. Table VII-24 displays the average occurrences per Five-Minute Observation (FMO) on selected feedback variables.

Table VII-24

ADULT FEEDBACK TO CHILDREN: SOUTHWEST LAB

Variable	For Behavior	$\bar{X}$ per FMO
FMO 90	Praise	0.05
FMO 94	Non-task-related acknowledgment	0.11
FMO 98	Positive corrective	1.43
FMO 101	Negative corrective	0.23
FMO 102	Firm corrective	0.22
	For Task-Related Activity	
FMO 89	Praise	1.50
FMO 93	Acknowledgment	1.82
FMO 99	Positive corrective	1.61
FMO 103	Negative corrective	0.005
	All	
FMO 104	All feedback	8.38

Child Processes--The SE child talks to the adults and to his classmates in approximately equal amounts (FMO 1^c, 5^c). His interactions with other children are almost always on a one-to-one basis (FMO 8^c - 12^c). Productive statements and responses make up the largest proportion of his verbal communications with others, but he exchanges frequent general comments with the adults and children in his room (FMO 19^c, 32^c - 34^c, 38^c, 39^c).

Self-instruction constitutes a large part of his nonverbal activities, as does listening or observing others and waiting for a change in activity or for the attention of others (FMO 23^c, 42^c, 43^c). The SE child shows far more positive than negative behavior (FMO 48^c - 56^c)

2. Site Implementation Scores

Another means of evaluating site implementation was to compare sponsor goals with observed classroom procedures. To do this, specific variables were selected for each sponsor which best described his model. These variables were selected on the basis of sponsor rating of variables (presented in Appendix B) and from the experience and knowledge of SRI staff members regarding the sponsors' classrooms. In a few cases, the sponsor's rating on a specific variable, as shown in Appendix B, was 0 (neutral to the model) or, in one case, - (should not occur). SRI staff members felt in these cases that the intent of the variable was not clear to the sponsors.* A decision was made to use the variable on the basis of SRI staff knowledge regarding sponsor goals and knowledge of the components the variables were intended to assess.

While most of the sponsors can state their goals clearly, it is difficult to give an operational description of events that should occur in the classroom. Most sponsors can describe the activities which should occur but they cannot designate, for example, how frequently adults or children should ask questions during a 5-minute observation. It is difficult to predict the frequency of small groups, or of praise, or of independent learning. However, it is assumed that each sponsor, in his own way, is seeking to diverge from the program of the traditional classroom. Thus, the degree of implementation was assessed by comparing each sponsor's classrooms with all Non-Follow Through classrooms.

a. Method

From the variable list, specific variables were selected which reflect desirable processes and behavior for each individual sponsor. This process of selection resulted in a total of 77 variables which were used for the comparison with Non-Follow Through classrooms. Only those variables which reflected components pertinent to each model were used in determining site implementation. The number of selected variables for individual sponsors range from 14 for U. of Florida to 43 for Far West.

Site implementation scores were computed by comparing each site's mean on frequency of occurrence with the range of the frequency means for Non-Follow Through classrooms. The means of all 74 observed Non-Follow Through classrooms were placed in rank order. Approximately

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* Phone calls to sponsors confirmed these assumptions.

18.5 classrooms were placed in each of four quartiles. The scores of the 18 lowest-ranking classrooms constituted the first quartile, the scores of the second group of approximately 18 were the second quartile. The third and fourth quartile were established in the same manner, with the 18 highest ranking scores constituting the fourth quartile. Therefore, classrooms in the fourth quartile had the highest rate of frequency of occurrence for a particular variable. The mean of each Follow Through site was then compared to the Non-Follow Through quartiles. The appropriate quartile number was then assigned to each model's selected variables. For example, if a site's mean fell within the range for the third quartile, a value of 3 was assigned for that variable. If a model's mean was greater than the highest scoring Non-Follow Through classroom, a value of 4 was assigned to the site. High scoring was seen as indicating a well implemented program.

Scores were compiled for each site on the selected variables pertinent to their program. The scores were then totaled and divided by the highest possible score which a site could achieve. This percent quotient was then used as the implementation score. For example, a site which had 25 selected variables could achieve a maximum score of 100, if that site scored as high as 4 on each of the 25 variables. If the site scored below the fourth quartile on some of the variables selected for that model, perhaps the actual score would be 80. The actual score of 80 was divided by the maximum score of 100, thus giving the site an implementation score of 80%. The implementation scores of all 12 sites were calculated in this manner, and the results are shown in Table VII-25.

b. Results

Site implementation scores ranged from 93.2% to 77.8%. Table VII-26 shows that Southwest Lab's site scored somewhat lower than the other 11 sites. This score must be considered with great reservation, as Southwest Lab is a bilingual model and the COI had not been developed to optimally record behavior which might be pertinent to a bilingual program. Also the analysis was performed by combining all grade levels and the SE program goals are differentiated by grade level (see Appendix B).

The results were also examined by grouping sponsors into the categories established by Maccoby and Zellner as discussed in Chapter I. The behavior modification group was contrasted with the

Table VII-25

SITE IMPLEMENTATION SCORES ON SELECTED VARIABLES

Selected Variable*	Sponsor											
	FW	UA	BC	UG	UO	UK	HS	UF	ED	UP	IL	SE
CCL												
2. Group time	3	4					3					
3. Story, singing, dancing	4						4		3			
4. Arithmetic, numbers, math				4	4	4				4		
5. Reading, alphabet, language development					4	4						
6. Social studies, geography	2	1	4									2
7. Science, natural world		4		4			4					
8. Guessing games, table games, puzzles	4								4		4	
9. Arts, crafts	4	4	3				4		4			
10. Sewing, cooking, pounding, sawing		3							4			
11. Blocks, trucks									4			
12. Dolls, dress-up									4			
13. Active play									4			
14. Wide variety of activities	4	4	4	4			4		4		4	
15. Teacher with one child in any academic activity	4		4						4	4		
16. Teacher with two children in any academic activity											4	

Table VII-25 (Continued)

	Selected Variable*	Sponsor											
		FW	UA	BC	UG	UO	UK	HS	UF	ED	UP	IL	SE
17.	Teacher with small group in any academic activity		4	4	4	4	4	4				4	
18.	Teacher with large group in any academic activity												2
19.	Aide with one child in any academic activity	4							4	4	4		
20.	Aide with two children in any academic activity								4			4	
21.	Aide with small group in any academic activity		4	4	4	4	4	4	4			4	4
25.	Volunteer with small group in any academic activity						4					4	
27.	Academic activities				4	4	4						
28.	Use of textbooks, work books, and any symbolic objects in any academic activity					4	4		3				
29.	Use of language experience charts in Activity 5	4	3							4		4	
30.	Use of tapes, records, films or TV in any academic activity	4		4	4								
31.	Use of games in Activities 4 and 5	4	4	3	4			4				4	
32.	Use of concrete objects in Activities 4 and 6	4	4	4	4			4	4				
33.	Use of science equipment, plants and animals	4	4	4				4		4			
34.	Children working independently in any academic activity	3	3							3	4	4	
43.	Aide with one child in any activity								4				

Table VII-25 (Continued)

Selected Variable*	FW	UA	BC	UG	UO	UK	HS	UF	ED	UP	IL	SE
	Sponsor											
44. Aide with two children in any activity								4				
45. Aide with small group in any activity								4				
49. One child engaged in any activity without adult	4	3	3				4		4	4	4	
50. Two children engaged in any activity without adult									4			
51. Small group without adult in any activity	4	4	4						4		4	
53. Number of adults in classroom						4						
FMO												
2. Child initiating interaction with adult	3	3	3				3		2		3	
5. Child talking to other children	3	3	3				3		3		4	3
15. Child giving request or command										4		
16. Child asking direct question	4	4	3	3			3			3		
17. Child asking open-ended question	4	4	4				4		3			
19. Child responding				3	4	3				4		
20. Child responding with academic theme				4	4	4				4		
21. Child responding to adult open-ended question	4	4	2				4		4			
22. Child giving elaborated response to adult open-ended question									4			

Table VII-25 (Continued)

Selected Variable*	Sponsor											
	FW	UA	BC	UG	UO	UK	HS	UF	ED	UP	IL	SE
23. Child instructing self	2	2	3	3	4	4	1		3	2	2	
24. Child instructing self in academic activity						4	4		4			
25. Child instructing self by using objects	3	3	2	2			4		4	4	4	
26. Child instructing self in academic activity by using objects		4	4	4			4		4		4	
27. Child instructing other children	4	4	3						4		4	
29. Child task persistent in self-instruction	2	2	4	3	4	4			4	2		
32. Child commenting to adult	3	3	2				3		1		4	3
33. Child commenting to other children	3	4	3				4		4		3	3
37. Child giving acknowledgment	4	3	4				3		3		3	
38. Child making productive statement	4	4	3				4				4	4
40. Child giving corrective feedback	4						4				4	3
50. Child showing positive behavior	4	4	4	3	2	2	3	3	2		4	
55. Child giving positive touch	4											
57. Child engaged in task-related activity	3	2	3	4	2	4	2	3	2	4	4	2
58. Child cooperating with other children	4	4	4				4		4		4	
59. Child sharing life experiences	3	3	3						2			
61. Adult interacting with one child	4					4	3	4		4		

Table VII-25 (Continued)

Selected Variable*	FW	UA	BC	UG	UO	UK	HS	UF	ED	UP	IL	SE
	Sponsor											
63. Adult interacting with small group				4	4						4	
64. Adult interacting with large group												3
66. Aide interacting with one child -						4						
79. Adult asking open-ended question of children	4	4	2				4		3		3	4
83. Adult instructing children by using objects	3	4	4	3			4		4		3	4
86. Adult in motion										2		
89. Adult praising children in task-related activity					4	3				4	4	4
90. Adult praising children for behavior					4	4						
93. Adult giving task-related acknowledgment to children	3	3	3		3	3	3			4	3	
96. Adult making productive statement to children	3	4	3				2			3	3	3
98. Adult giving children positive corrective feedback for behavior	3	3	2	1	3	4	3		3	3	3	3
99. Adult giving children positive corrective feedback in task-related activity	2	2	3	3	3	2	3		2	4	3	3
105. Adult giving children feedback for academic responses to adult academic direct question				3	4	4		3		4		
109. All positive behavior	4	4	4	3	2	2	3	3	3		3	3
117. Adult interacting with child in task-related activity				3	2	4				4		

Table VII-25 (Concluded)

	Sponsor											
Selected Variable*	FW	UA	BC	UG	UA	UK	HS	UF	ED	UP	IL	SE
Total of Variable Scores	151	137	123	85	77	91	121	51	130	79	128	56
Maximum Possible Score	172	160	148	100	88	100	140	56	152	88	140	72
Implementation Score	87.8%	85.6%	83.1%	85.0%	87.5%	91.0%	86.4%	91.1%	85.5%	89.8%	91.4%	77.8%
Number of Selected Variables	43	40	37	25	22	25	35	14	38	25	35	18

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* All variables taken from Appendix L-2 except FMO-5, -23, -24, -25, -26, -27, -29, -33, -55, -58.

cognitive growth and the self-actualizing groups.* As can be seen on Table VII-26, the programs of the behavior modification group of sponsors scored the highest site implementation mean (91.3%). This high score may indicate that these sponsors have been more successful in changing teacher behavior in desired directions or it may indicate that the COI can more easily record the behavioral components important to that particular group

Table VII-26

GROUP IMPLEMENTATION SCORES

Group A (Self-Actualization)

Sponsor	Score	
Far West Laboratory	87.8%	
U. of Arizona	85.6%	
Bank Street	83.1%	
EDC	85.5%	
Group C (Cognitive Growth)		
Far West	87.8%	
U. of Georgia	85.0%	
High Scope	86.4%	
ILM	91.4%	
Sponsor Mean for Groups A and C		- 86.6%
Group B (Behavior Modification)		
U. of Oregon	93.2%	
U. of Kansas	91.0%	
U. of Pittsburgh	89.8%	
Sponsor Mean		91.3%

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*The cognitive growth and the self-actualizing groups have been combined since several sponsors logically fit into both groups.

of sponsors. Sponsors in the behavior modification group describe their program in specific behavioralist terms and therefore they can be more easily defined in terms of the COI codes and consequently more easily recorded. The sponsors in the other two groups on the other hand, often describe events which should occur in their classrooms, such as mutual respect or intrinsic rewards, which because of their inferential or subjective nature cannot be as reliably recorded by observers. Thus, some sponsors have not been assessed on components vital to their models. Nevertheless, all sites have achieved a remarkable degree of implementation when judged by the variables which were selected to reflect each model.

3. Factor Analysis of Variables: Nine Global Variables (Factors)

It is admittedly difficult to conceptualize all of the shades of difference in classroom behavior among sponsors and sites in terms of the 220 individual variables. Factor analysis permits an economical grouping of variables into a smaller, more manipulable set of global variables without loss of an excessive amount of variance accountability. Factor analysis also offers a further advantage in that normalized factor scores can be obtained and graphically displayed for any grouping over which variable frequency can be recorded.

a. Method

From the total variables, 65 were selected for use in a factor analysis. These 65 variables were chosen on the basis of independence (not nested with other variables) and frequency of occurrence. They were selected from the summary of physical environment (OSF), the CCL, and the FMO. Thus, an opportunity was provided for contextual pictures to emerge where room arrangements, grouping clusters, materials, and behavior of adults and children might be linked.

The 65 variables were arranged in a correlation matrix (see Appendix C) and subjected to a principal components analysis. Six varimax rotations were performed on five, six, seven, eight, nine, and ten factors. The nine-factor rotation accounted for 57% of the matrix variance and provided factors that were more interpretable than those from the other rotations. The loadings of each variable on the nine factors are summarized in the next section. Each variable was assigned to the factor on which it had its highest loading. If a variable loaded highly and equally on more than one factor, it was carried on each. This usually occurred when a variable loaded positively on one factor and negatively on another. To be able to use the factors to describe sponsors, factor scores for each classroom (classroom is the unit of analysis) were computed.* A factor score is the weighted combination of scores on all 65 variables for a given classroom. The weights are determined by the factor loadings. The factor scores in this report have the properties of being normally distributed, with a mean of zero and standard deviation of one. Table VII-27 displays classroom means and standard deviations of factor scores by individual sponsors and by all Follow Through and all Non-Follow Through.

b. Results and Discussion

Scores based on the factor analysis described in the preceding section are available on nine classroom characteristics. Tables VII-26 through -34 and Figures VII-1 through -9 show the results of the factor analysis for each sponsor, overall Follow Through and non-Follow Through. In these illustrations, zero (0) indicates the mean of all of the classrooms observed. Data reported here were taken only from the adult focused tape.

1) Factor 1: Stimulus-Response-Feedback (.0951 variance accountable)--This factor describes a stimulus-response-feedback system of stimulation. The variables that load positively indicate direct and immediate interaction between adult and child. Variables that load negatively show teachers disengaged from interactions with children.

A classroom scoring high on this factor might have frequent situations like the following: An adult would use a highly verbal and direct approach of questioning, requesting, or commenting. Children, in turn, would respond by performing the task or answering the question. The children would then be acknowledged, praised, or corrected for their task performance. Such direct questioning and requesting might influence the kind of response a child would make. Since speculation is not usually expected when a direct question is asked regarding specific information, the inability of a child to answer correctly might compel him to give no response at all. The child who does reply is likely to receive some reinforcing feedback.

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*By the least-squares solution described in Paul Horst's Factor Analysis of Data Matrix (Holt, Rinehart and Winston, New York, 1965).

Table VII-27

MEANS AND STANDARD DEVIATIONS OF FACTOR SCORES, BY SPONSOR

	Factors								
	Stimulus-Response-Feedback	Small Group Activities	Range of Emotion in Social Behavior	Child Initiative	Formal Instruction	Divergent Questioning	Individualized Work Setting	Academic Equipment and Materials	Children Not Engaged With Adults
FW									
X̄	-.484	-.128	-.200	.982	.028	1.074	.348	.942	-.064
s.d.	.818	.670	.763	1.787	.583	.798	.988	.965	.523
UA									
X̄	-.327	.287	.092	.345	-.778	.938	-.161	-.406	-1.127
s.d.	.854	.750	.748	.860	.735	.887	.454	.288	.602
BC									
X̄	-.725	.667	-.221	.423	.059	-.549	.220	-.381	-.209
s.d.	.860	.758	.314	.846	.770	.599	.592	.566	.830
UG									
X̄	-.252	.914	.195	.454	.595	-.708	-.081	-.564	-.217
s.d.	.703	.572	.564	.789	.785	.387	.554	.400	.548
UO									
X̄	.565	1.439	-.691	-1.081	1.151	-.478	-.885	-.881	-.244
s.d.	1.075	1.138	.411	.379	.751	.491	.799	.513	.337
UK									
X̄	.209	1.604	-.616	-.218	.726	.273	.001	-.197	-.364
s.d.	1.216	.422	.860	.799	.678	1.870	.770	.444	.595
HS									
X̄	.356	.805	-.263	.143	-.743	1.056	-.223	-.010	1.462
s.d.	.551	.581	1.677	.749	.894	1.285	1.330	.797	1.166
UF									
X̄	.476	.139	.108	.216	.109	-.554	-.697	2.328	-.472
s.d.	.850	.393	1.052	.896	.589	.570	.532	1.024	.771
ED									
X̄	-1.426	.341	.470	-.932	-.522	-.354	.386	.360	-.457
s.d.	1.124	.476	.981	.479	.567	.449	.492	.705	.664
UP									
X̄	1.375	-.459	-.750	.012	-.291	-.287	2.334	-.416	.136
s.d.	.572	.450	.365	.478	1.065	.924	1.011	.256	.656
IL									
X̄	-.211	.261	.120	-.126	.201	-.320	.602	1.228	.997
s.d.	.731	.576	.813	.855	1.067	.420	.533	1.130	.845
SE									
X̄	.435	-.472	.486	-.788	-.456	.533	-.693	-.261	-.162
s.d.	.966	.885	.666	.497	.659	.834	.414	.483	.487
Total									
Follow Through									
X̄	.006	.444	-.103	-.040	-.024	.077	.089	.146	-.014
s.d.	1.086	.898	.938	1.014	.952	1.084	1.101	1.104	.981
Non-Follow Through									
X̄	-.012	-.876	.203	079	.047	-.151	-.125	-.287	.028
s.d.	.845	.519	1.130	1.015	1.114	.825	.796	.752	1.117

Table VII-28

FACTOR LOADINGS OF SELECTED VARIABLES
FOR FACTOR 1, STIMULUS-RESPONSE-FEEDBACK

Variable[*]		Loading
FMO-19	Child responding	+.77
FMO-77	Adult giving request or command to children	+.70
FMO-78	Adult asking direct question of children	+.70
FMO-93	Adult giving task-related acknowledgment to children	+.62
FMO-105	Adult giving children feedback for academic response to adult academic direct question	+.53
FMO-41	Child not responding	+.47
FMO-89	Adult praising children in task-related activity	+.35
CCL-32	Use of concrete objects in Activities 4 and 6	+.32
FMO-108	Adult attentive to children	-.48
FMO-86	Adult in motion	-.49

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[*] Adult focus only.

When all Follow Through sponsors are combined, little difference is shown from the mean. Indeed, total Follow Through and Non-Follow Through appear very much the same. However, there are striking differences between individual sponsor classrooms and Non-Follow Through classrooms, as shown in Figure VII-1. This figure indicates the stimulus-response-feedback sequence was the most frequently used by teachers in the U. Pittsburgh model. The U. Oregon, U. Kansas, High/Scope, U. Florida, and Southwest Lab program used this sequence more than the average but to a lesser degree than U. Pittsburgh. EDC was noteworthy in refraining from using this educational process. All twelve sponsors differ from Non-Follow Through.

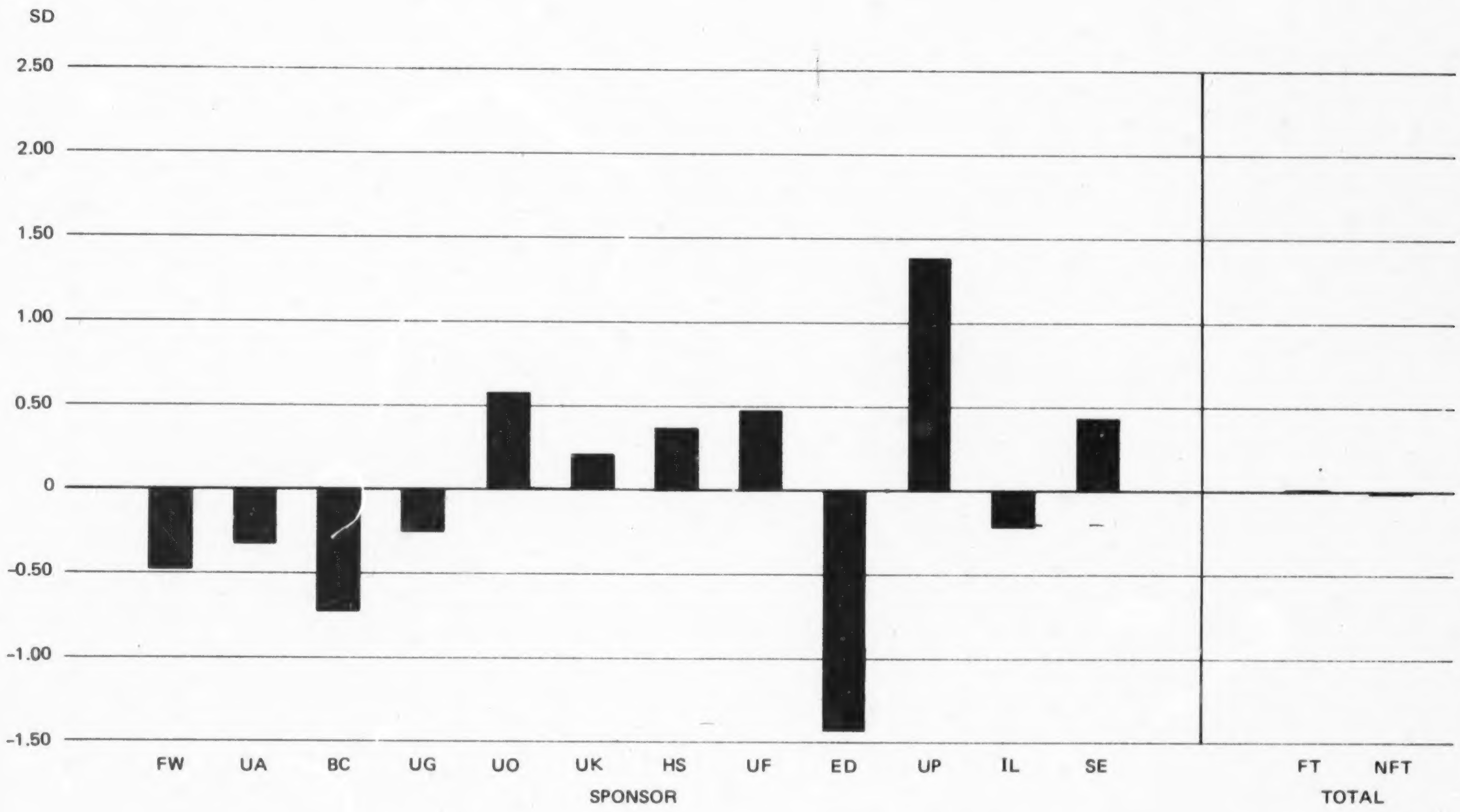

FIGURE VII-1 COMPARISON BY SPONSORS OF FACTOR 1, STIMULUS-RESPONSE-FEEDBACK

2) Factor 2, Small Group Activities (.0884 variance accountable)--This factor contrasts classrooms with small activity groupings, where a wide selection of materials were used in the instructional process, with a large group classroom setting in which one teacher instructed the entire class. Classrooms with a high score might look as follows: Arithmetic and science would be taught in small groups by teachers and aides using (1) math tools such as weights and measures and (2) science materials such as batteries, plants, and animals. The adult/child ratio would be high, allowing for a wide variety of activities to occur. This flexibility on the part of adults would be less likely to occur in settings where one teacher had responsibility for a large group of children and had fewer materials available.

When all the models were averaged, more of these small group activities were found in the Follow Through classes than in the Non-Follow Through classes (see Figure VII-2). A comparison of sponsors also showed a wide difference on this factor. U. Kansas, U. Oregon, High/Scope, U. Georgia, and Bank Street had more small groups of adults and children working in a variety of activities than the average. U. Pittsburgh and Far West Lab (below the mean) were more likely to have

Table VII-29

FACTOR LOADINGS OF SELECTED VARIABLES
FOR FACTOR 2, SMALL GROUP ACTIVITIES

Variable*		Loading
CCL-17	Teacher with small group in academic activity	+.74
CCL-4	Arithmetic, numbers, math	+.74
CCL-21	Aide with small group in academic activity	+.74
CCL-33	Use of science equipment, plants, and animals	+.73
OSF-15	Adult/child ratio	+.59
CCL-14	Wide variety of activities	+.53
CCL-32	Use of concrete objects in Activities 4 and 6	+.47
CCL-20	Aide with two children in academic activity	+.29
OSF-18	Stationary desks in rows	-.35
CCL-18	Teacher with large group in academic activity	-.69

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*Adult focus only.

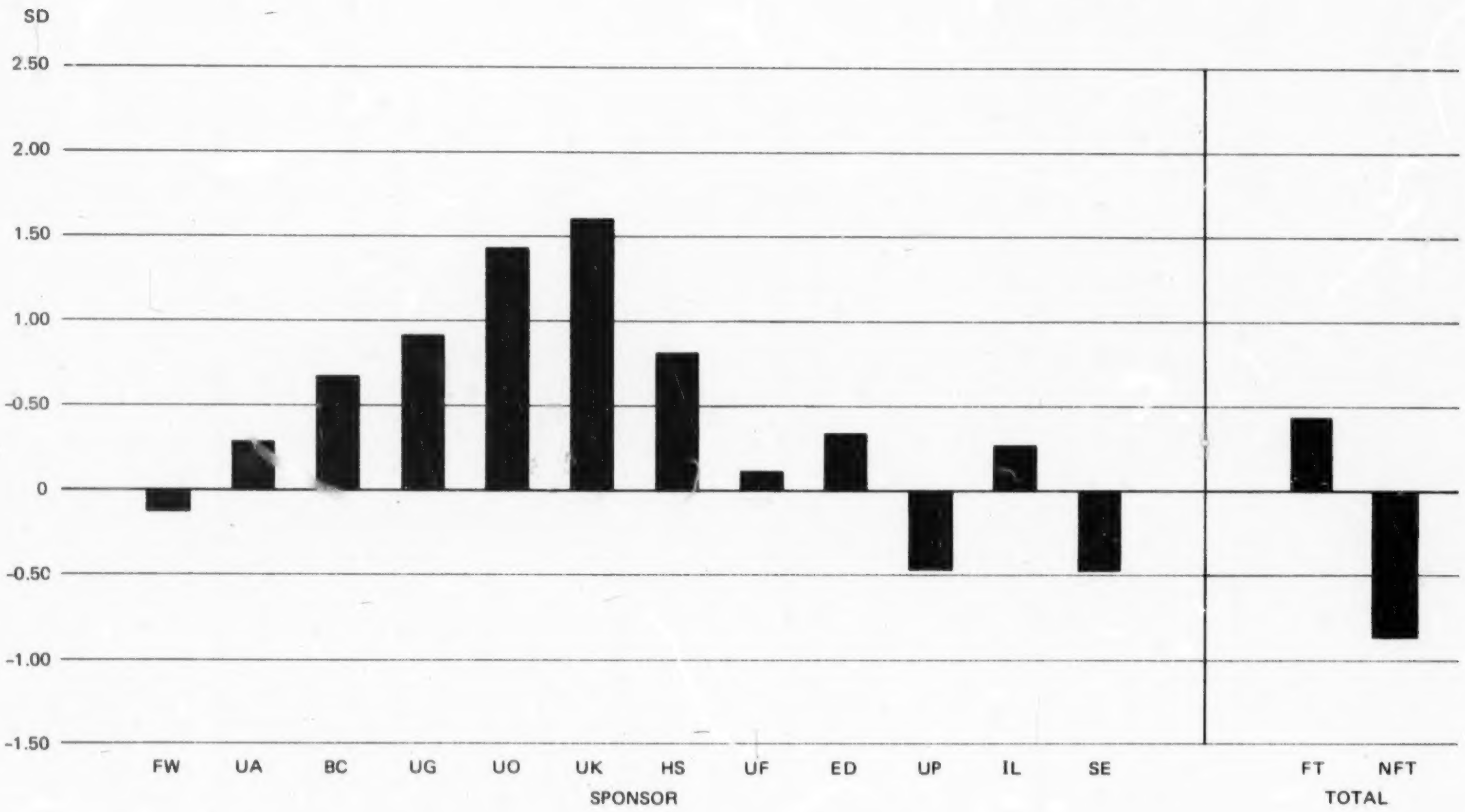

FIGURE VII-2 COMPARISON BY SPONSORS OF FACTOR 2, SMALL GROUP ACTIVITIES

adults working with one child at a time, rather than small groups. Southwest Lab (also below the mean for small groups) tended to have interactions with children in a large group.

3) Factor 3--Range of Emotion in Social Behavior (.0792 variance accountable)--This factor suggests that a positive and negative range of emotions are not mutually exclusive within a classroom. It appears that the freedom to express happiness and displeasure is often found in the same classroom. Classrooms scoring high on Factor 3 would probably have both adults and children openly revealing their feelings whether positive or negative. Adults seem to act as a model for behavior; if they exhibit negative behavior, so do children. This is usually recorded through the effect or tone of actions. Adults attempt to modify

Table VII-30

FACTOR LOADINGS OF SELECTED VARIABLES
FOR FACTOR 3, RANGE OF EMOTION IN SOCIAL BEHAVIOR

	Variable*	Loading
FMO-112	Adult showing negative behavior	+.73
FMO-101	Adult giving children negative corrective feedback for behavior	+.72
FMO-32	Child commenting to adult	+.46
FMO-85	Adult commenting to children	+.42
FMO-53	Any child or children showing negative behavior	+.39
FMO-98	Adult giving children positive corrective feedback for behavior	+.37
FMO-50	Child showing positive behavior	+.23
FMO-103	Adult giving children negative corrective feedback in task-related activity	-.29

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*Adult focus only

misbehavior of children through a mixture of suggesting alternative behavior and making firm statements regarding limits.

A clear distinction is made between the feedback system for behavior and the feedback system for academic accomplishments, since the latter dimension loads negatively on this factor.

Non-Follow Through classrooms were slightly above the mean in expressing emotions. Figure VII-3 indicates that individual sponsors differed from each other and from Non-Follow Through for this factor. Feelings were shown most often in the classrooms of Southwest Lab and EDC. Only these two sponsors were higher than Non-Follow Through. Adults and children in the programs of U. Arizona, U. Georgia, U. Florida, and ILM also reflected more emotional behavior than the mean overall. The models which were observed to have less than the average positive or negative affect were the more behavioristic models, U. Oregon, U. Kansas, and U. Pittsburgh. They evidenced overall a more calm, even atmosphere.

4) Factor 4--Child Initiative (.0673 variance accountable)--This factor describes a situation of children taking verbal initiative: asking direct and speculative questions, making task-related statements, offering opinions on the work of others, and sharing portions of home life. A high scoring on this factor suggests children feeling accepted in the environment and self-confident, feeling free to express both positive and negative behavior.

The averages of both Follow Through classrooms and Non-Follow Through classrooms are no different from the mean on this factor. Figure VII-4 shows sponsors to differ widely from each other and from Non-Follow Through on the child initiative factor.

The children of Far West Lab classrooms were higher than all other children on this factor. The U. Arizona, Bank Street, and U. Georgia children also demonstrated verbal initiative and self-confidence as evaluated by these variables. A higher score would have been expected for EDC since the model values child initiative. The relatively high scoring of U. Oregon, Southwest Lab, and U. Pittsburgh on Factor 1 (stimulus-response-feedback) may serve as a partial explanation for their low scoring on Factor 4 (verbal initiative). If a child is highly responsive to a teacher's cues, he may not initiate interactions and ask questions readily.

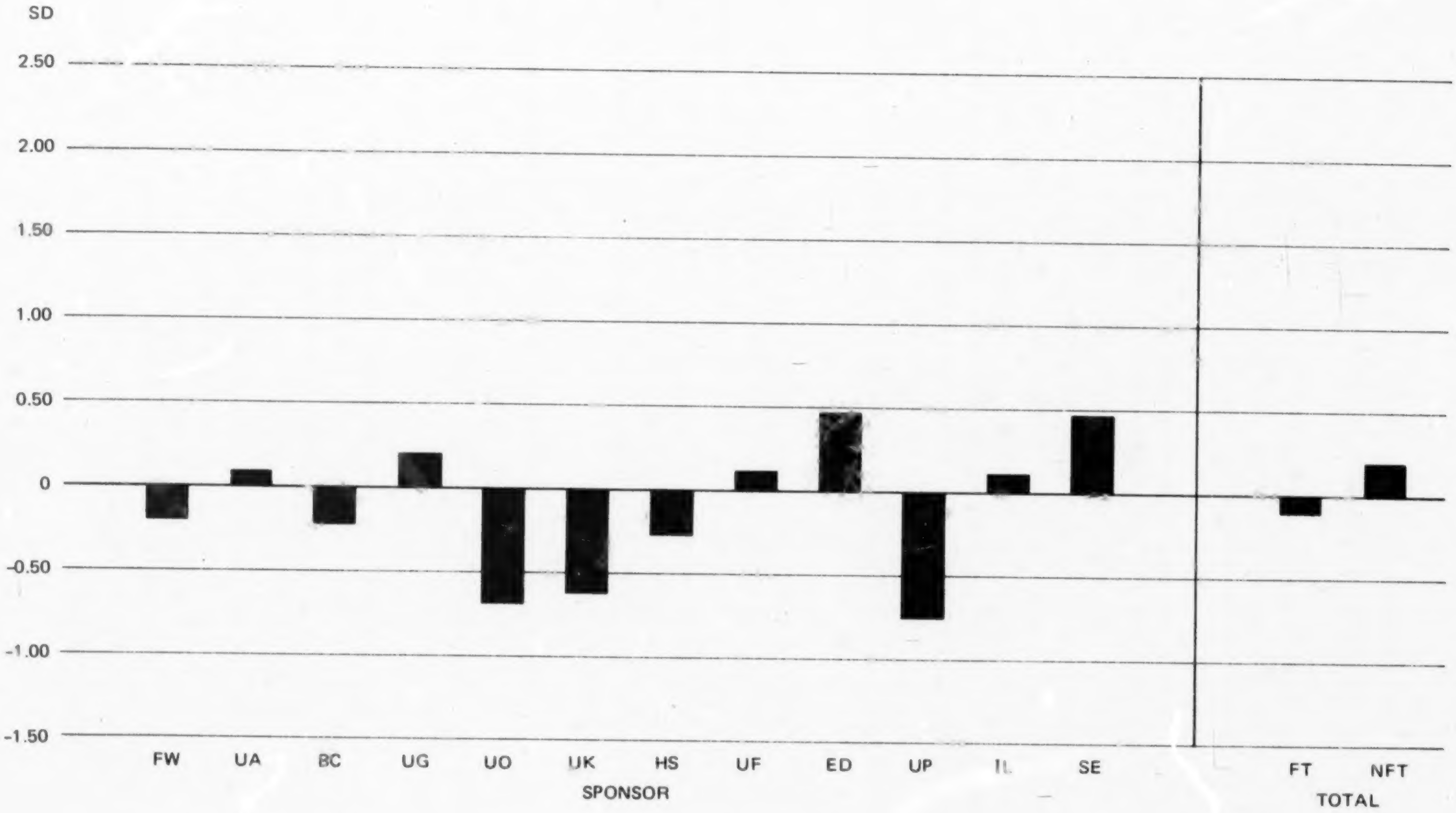

FIGURE VII-3 COMPARISON BY SPONSORS OF FACTOR 3, RANGE OF EMOTION IN SOCIAL BEHAVIOR

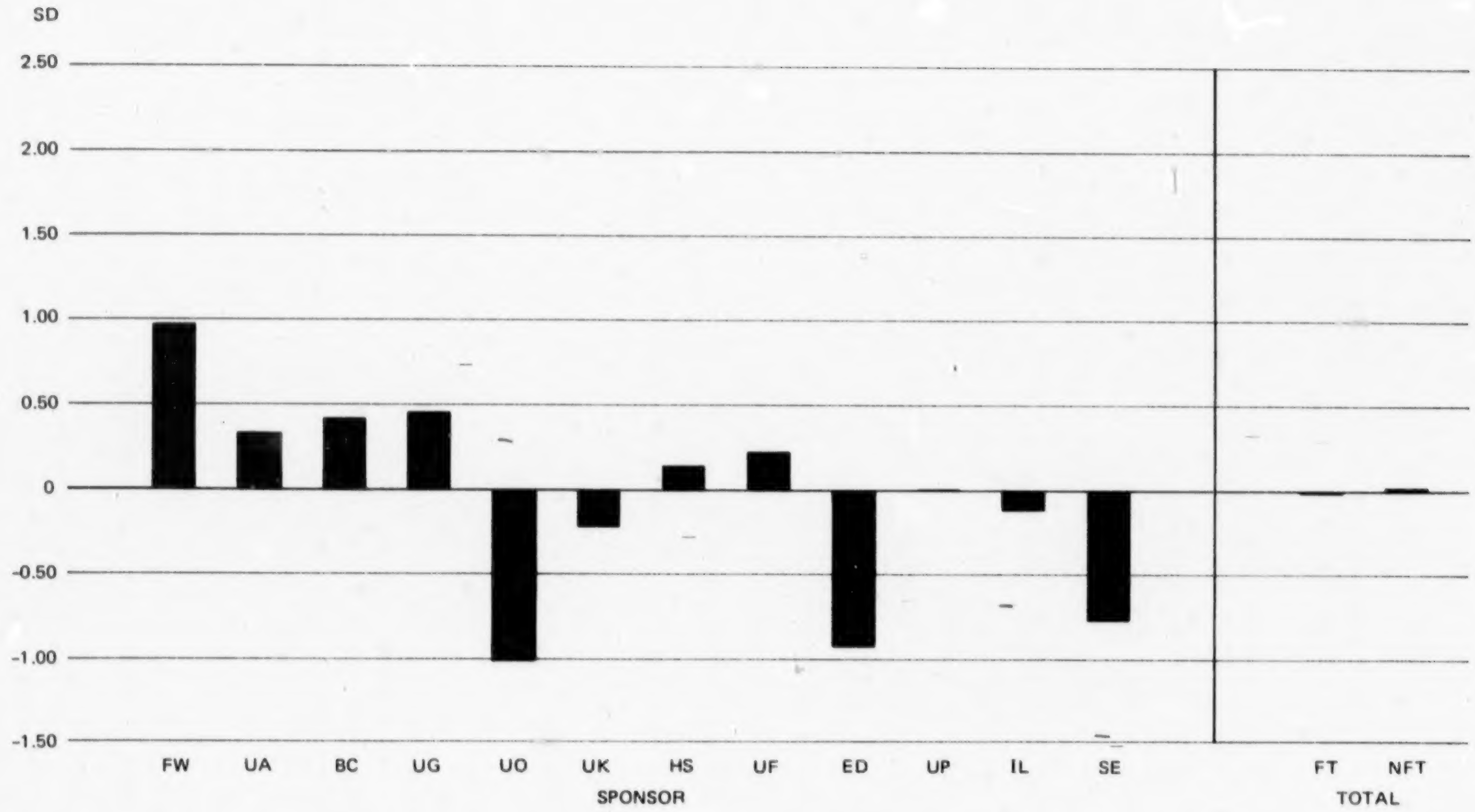

FIGURE VII-4 COMPARISON BY SPONSORS OF FACTOR 4, CHILD INITIATIVE

Table VII-31

FACTOR LOADINGS OF SELECTED VARIABLES
FOR FACTOR 4, CHILD INITIATIVE

Variable*		Loading
FMO-2	Child initiating interaction with an adult	+.75
FMO-16	Child asking direct question	+.70
FMO-38	Child making productive statement	+.68
FMO-37	Child giving acknowledgment	+.48
FMO-117	Adult interacting with child or children in task-related activity	+.48
FMO-107	Adult not responding to children	+.48
FMO-59	Child sharing life experiences	+.40
FMO-15	Child giving request or command	+.35
FMO-50	Child showing positive behavior	+.35
FMO-17	Child asking open-ended question	+.26
FMO-53	Any child or children showing negative behavior	+.24

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*Adult focus only.

5) Factor 5--Formality of Instruction (.0576 variance accountable)--This factor contrasts a formal setting for teaching reading and arithmetic with a more flexible setting. In classrooms scoring high on this factor, there would be frequent occurrence of academic work which would be conducted in a setting of stationary desks in rows, and textbooks and symbols rather than objects would be used in academic activities. The adults would ask questions regarding the academic material and would provide immediate feedback to student responses. In general, the students would be involved in task-related activities. The setting would be consistent with the traditional emphasis on academic tasks, with a minimum of movement or manipulation of material.

Overall, Follow Through and Non-Follow Through did not differ from the mean in the formality or flexibility of instruction. Figure VII-5 shows that sponsors differ widely from each other on this

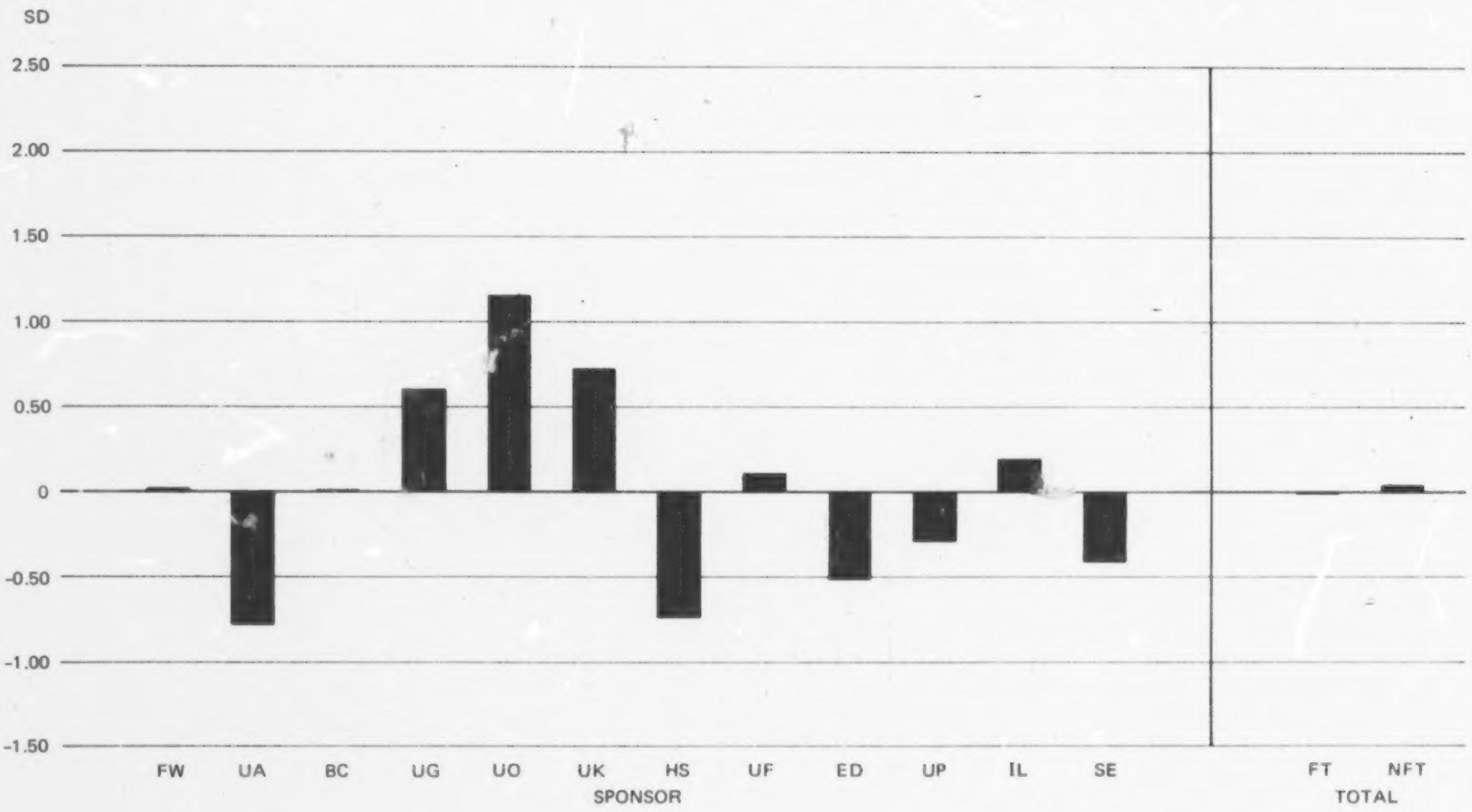

FIGURE VII-5 COMPARISON BY SPONSORS OF FACTOR 5, FORMAL INSTRUCTION

Table VII-32

FACTOR LOADINGS OF SELECTED VARIABLES
FOR FACTOR 5, FORMAL INSTRUCTION

Variable*		Loading
FMO-116	Academic events	+.89
CCL-28	Use of textbooks, workbooks, symbolic objects in academic activities	+.70
FMO-57	Child engaged in task-related activity	+.66
FMO-20	Child responding with academic theme	+.65
CCL-5	Reading, alphabet, language development	+.64
FMO-82	Adult instructing children in academic activity	+.62
FMO-99	Adult giving children positive corrective feedback in task-related activity	+.51
FMO-105	Adult giving children feedback for academic response to adult academic direct question	+.43
OSF-18	Stationary desks in rows	+.41
FMO-86	Adult motion	-.34
FMO-83	Adult instructing children by using objects	-.36
OSF-17	Movable tables and chairs for seating	-.39

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*Adult focus only.

factor. Figure VII-5 indicates that U. Georgia, U. Oregon, and U. Kansas were higher than all other sponsors in formality; in their classrooms a preponderance of academic events occurred; programmed materials were used; and children received immediate feedback for responses. The negative correlations with the factor suggest a different structure, where the adults would move about the room and would use objects to instruct children. This would tend to be characteristic of U. Arizona, High/Scope, EDC, U. Pittsburgh, and Southwest Lab, all of which scored below the mean on Factor 5. Far West and Bank Street did not differ from the mean.

6) Factor 6--Divergent Questioning (.0513 variance accountable)--This factor describes a situation where adults and children would ask open-ended questions requiring some generation of ideas on the part of the receiver of the question. Classrooms scoring high on this factor would have adults serving as models in asking such thought-provoking questions as, "How can we earn money for our zoo trip?" "How did you feel when the bus broke down?" or "How many patterns of ten can you make with these blocks?" The children would not only respond to such questions but would also ask divergent questions in return.

Non-Follow Through was below the mean as were seven Follow Through sponsors. Figure VII-6 shows significant differences between sponsors. The adults and children of Far West Lab, U. Arizona, High/Scope, U. Kansas, and Southwest Lab more often used divergent questions in their communication. High/Scope was unexpectedly high on this factor, since their adults also used a very direct questioning approach, as demonstrated on Factor 1.

Table VII-33

FACTOR LOADINGS OF SELECTED VARIABLES
FOR FACTOR 6, DIVERGENT QUESTIONING

Variable[*]		Loading
FMO-79	Adult asking open-ended question of children	+.92
FMO-21	Child responding to adult open-ended question	+.91
FMO-106	Adult giving children feedback for academic responses to adult open-ended question	+.67
FMO-17	Child asking open-ended question	+.38
FMO-110	Adult showing positive behavior	+.20

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[*] Adult focus only.

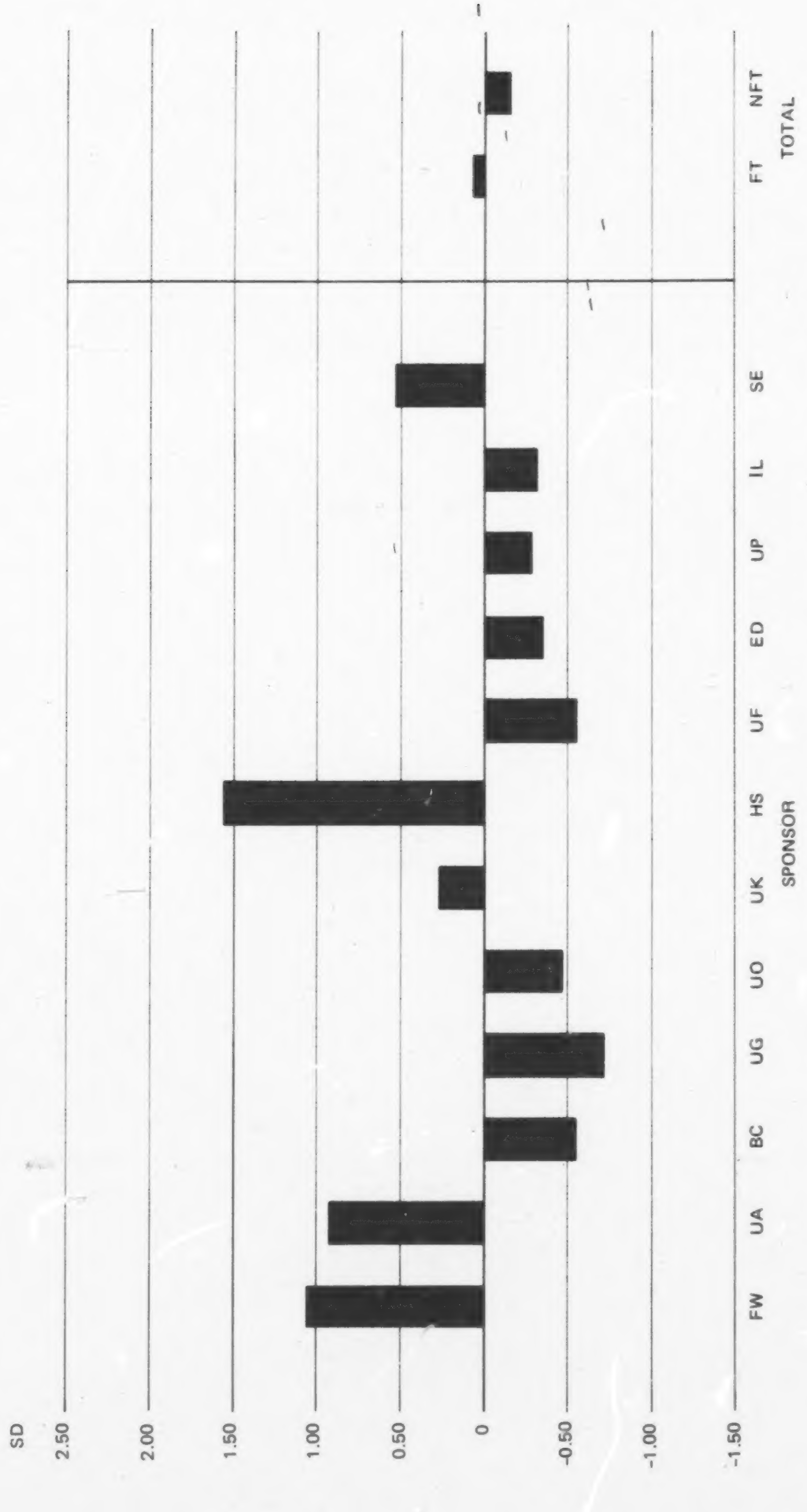

FIGURE VII-6 COMPARISON BY SPONSORS OF FACTOR 6, DIVERGENT QUESTIONING

7) Factor 7--Individualized Work Setting (.0391 variance accountable)--This factor describes a work setting where a child would receive individual attention from a teacher or an aide in reading or arithmetic instruction. Classrooms scoring high on Factor 7 would probably be flexible in the physical arrangement of furniture. Academic study would be individualized, since the adult/child ratio is high and the teacher and aide would interact with children on a one-to-one basis. Praise, rather than negative correction would be given for task performance.

Non-Follow Through children received less individual attention than did Follow Through children in five sponsors. Figure VII-7 indicates that sponsors differed widely on this factor. The data on the individualized work setting show that U. Pittsburgh classrooms were strikingly different from all other classrooms, receiving more individual attention. In this model the teacher speaks to one child at a time, giving him feedback or an assignment; then she moves to the next child. (Most instruction is on a one-to-one basis.) The ILM children also received more individual attention during reading and arithmetic instruction than did the children of other sponsors. The results indicate that the U. Oregon, U. Florida, and Southwest Lab children were less likely to experience individual attention than other sponsor children.

Table VII-34

FACTOR LOADINGS OF SELECTED VARIABLES
FOR FACTOR 7, INDIVIDUALIZED WORK SETTING

Variable*		Loading
CCL-15	Teacher with one child in academic activity	+.73
CCL-19	Aide with one child in academic activity	+.64
OSF-35	Open classroom	+.48
OSF-17	Movable tables and chairs for seating	+.29
FMO-89	Adult praising children in task-related activity	+.27
FMO-103	Adult giving children negative corrective feedback for task-related activity	-.29

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[*] Adult focus only.

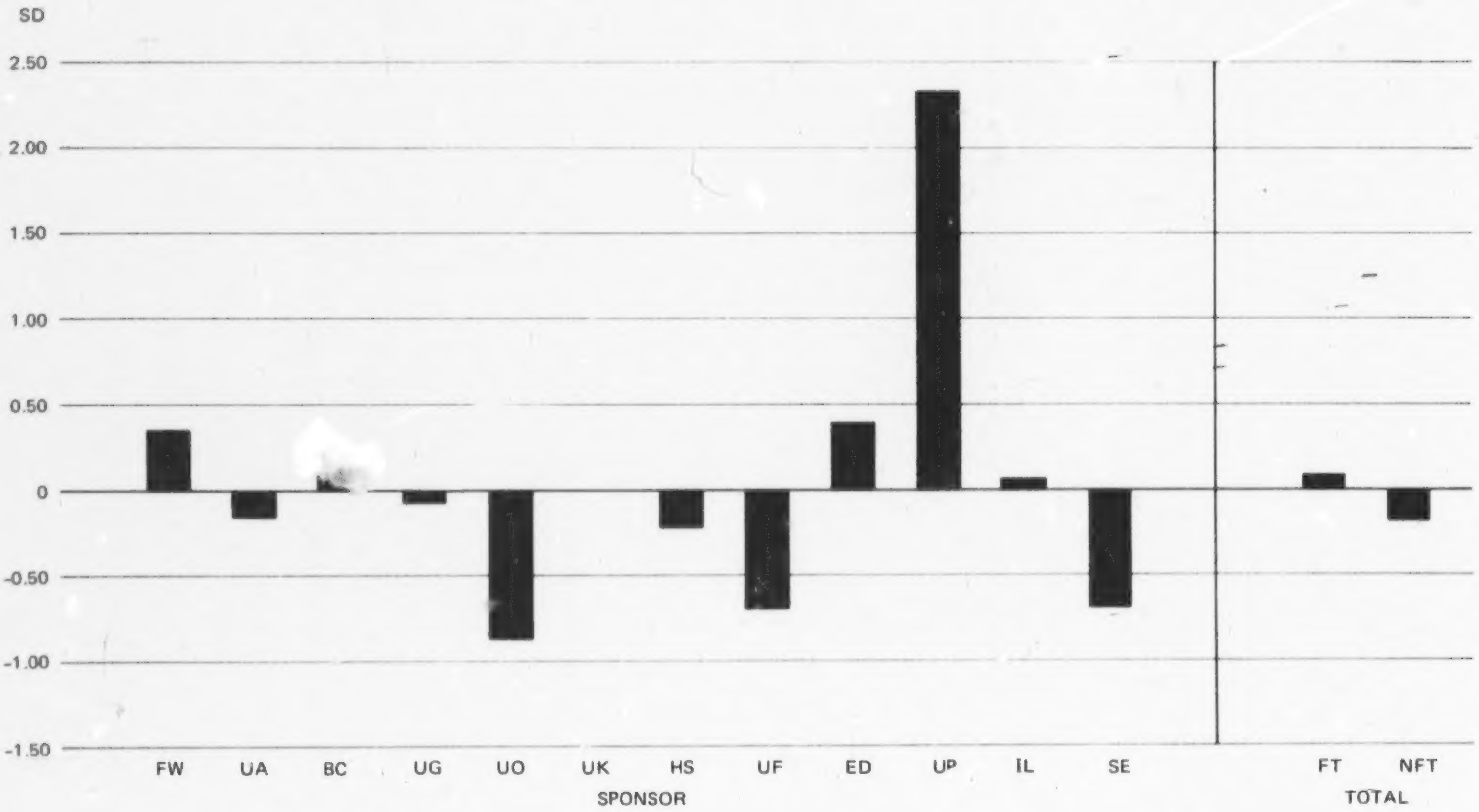

FIGURE VII-7 COMPARISON BY SPONSORS OF FACTOR 7, INDIVIDUALIZED WORK SETTING

8) Factor 8--Academic Equipment and Materials (.0346 variance accountable)--This factor describes the materials and equipment used for teaching reading and arithmetic, science, and social studies. The adults in classrooms scoring high on this factor would use audiovisual equipment, games, and language experience charts to teach reading, arithmetic, science, and social studies. They would primarily work with two children at a time. The children would show interest and would attend to the teacher and materials.

Non-Follow Through classrooms as well as seven sponsors were below the mean in using equipment and materials in academic subjects. The sponsors differed widely as shown in Figure VII-8. The data show that the teachers of U. Florida used more audiovisual equipment, games, and language experience charts in their classrooms than did the teachers of other sponsors. Several other sponsors who stress the use of materials and equipment, Far West Lab, ILM, and EDC, were also above the mean on this factor. These results cannot be generalized to all instructional materials, since the findings on Factor 2 show a different set of

Table VII-35

FACTOR LOADINGS OF SELECTED VARIABLES
IN FACTOR 8, ACADEMIC EQUIPMENT AND MATERIALS

Variable*		Loading
CCL-30	Use of tapes, records, films, or TV in academic activities	+.73
CCL-31	Use of games in Activities 4 and 5	+.64
CCL-29	Use of language experience charts in Activity 5	+.63
CCL-16	Teacher with two children in academic activities	+.45
FMO-45	Child attentive to adults	+.35
OSF-34	Single contained classroom	-.21
OSF-35	Open classroom	-.36
OSF-26	Noise level	-.46

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*Adult focus only.

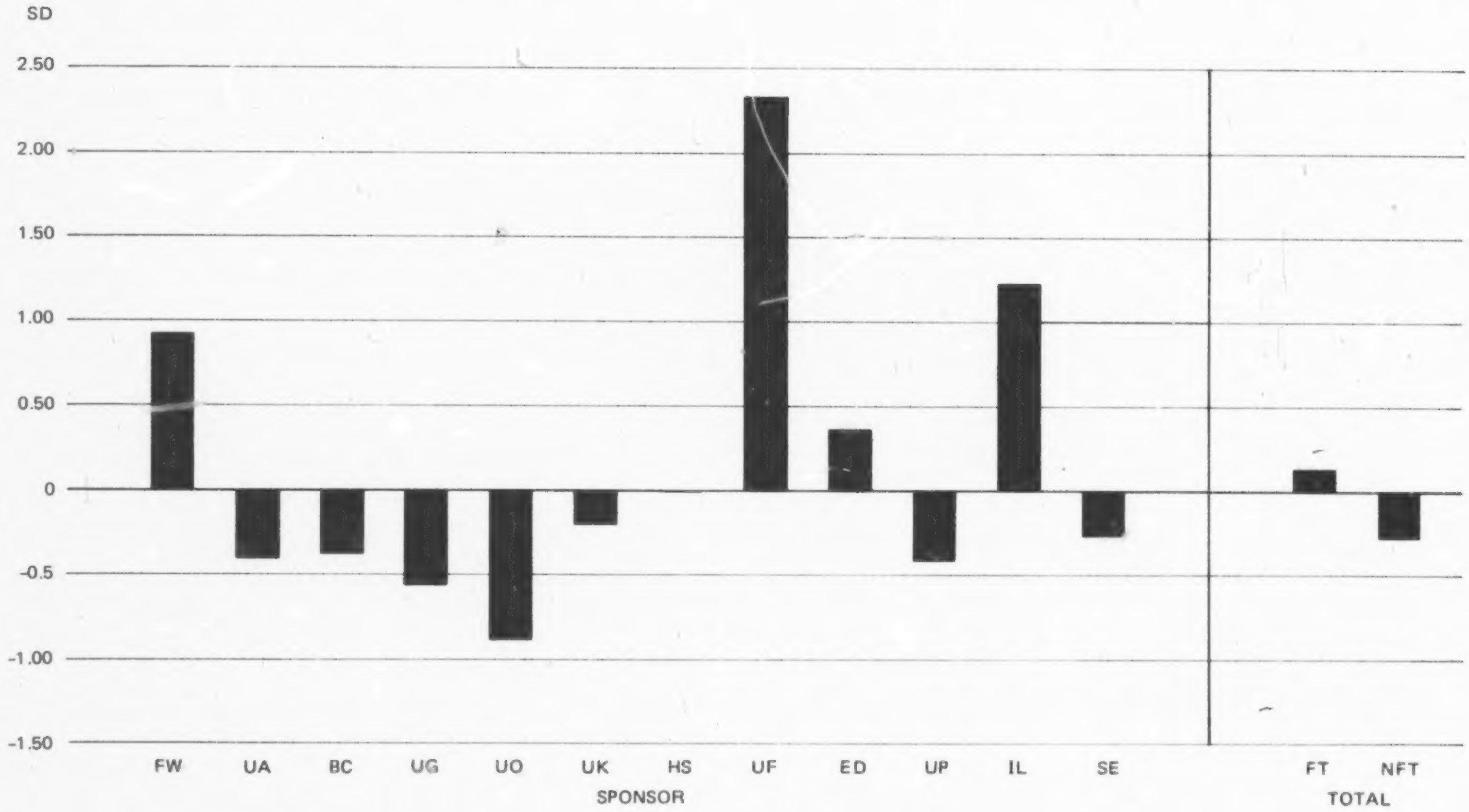

FIGURE VII-8 COMPARISON BY SPONSORS OF FACTOR 8, ACADEMIC EQUIPMENT AND MATERIALS

sponsors (UA, BC, UG, UO, UK, HS, ED, and IL) using science materials and concrete objects in small group academic instruction.

9) Factor 9--Children Not Engaged with Adults (.0557 variance accountable)--This factor describes a situation where children would not be interacting with adults. Classrooms scoring high on this factor would probably have children working alone on reading or arithmetic assignments but free to move about the room commenting and offering corrective feedback to each other. One interpretation for the negative relationship with adult positive behavior might be some adult impatience with children moving about and talking to each other.

Overall, Follow Through and Non-Follow Through did not differ from the mean on this factor; Figure VII-9 shows that nine sponsors scored below the mean. The children of High/Scope and ILM models were more often observed moving around the classroom, waiting for adults, or engaging in conversation with each other. They sometimes worked by

Table VII-36

FACTOR LOADINGS OF SELECTED VARIABLES
IN FACTOR 9, CHILDREN NOT ENGAGED WITH ADULTS

Variable*		Loading
FMO-35	Child participating in general action	+.65
FMO-42	Child waiting	+.55
FMO-33	Child commenting to other children	+.51
FMO-48	All child motion	+.48
FMO-40	Child giving corrective feedback	+.38
FMO-24	Child instructing self in academic activity	+.35
FMO-110	Adult showing positive behavior	-.29

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*Adult focus only.

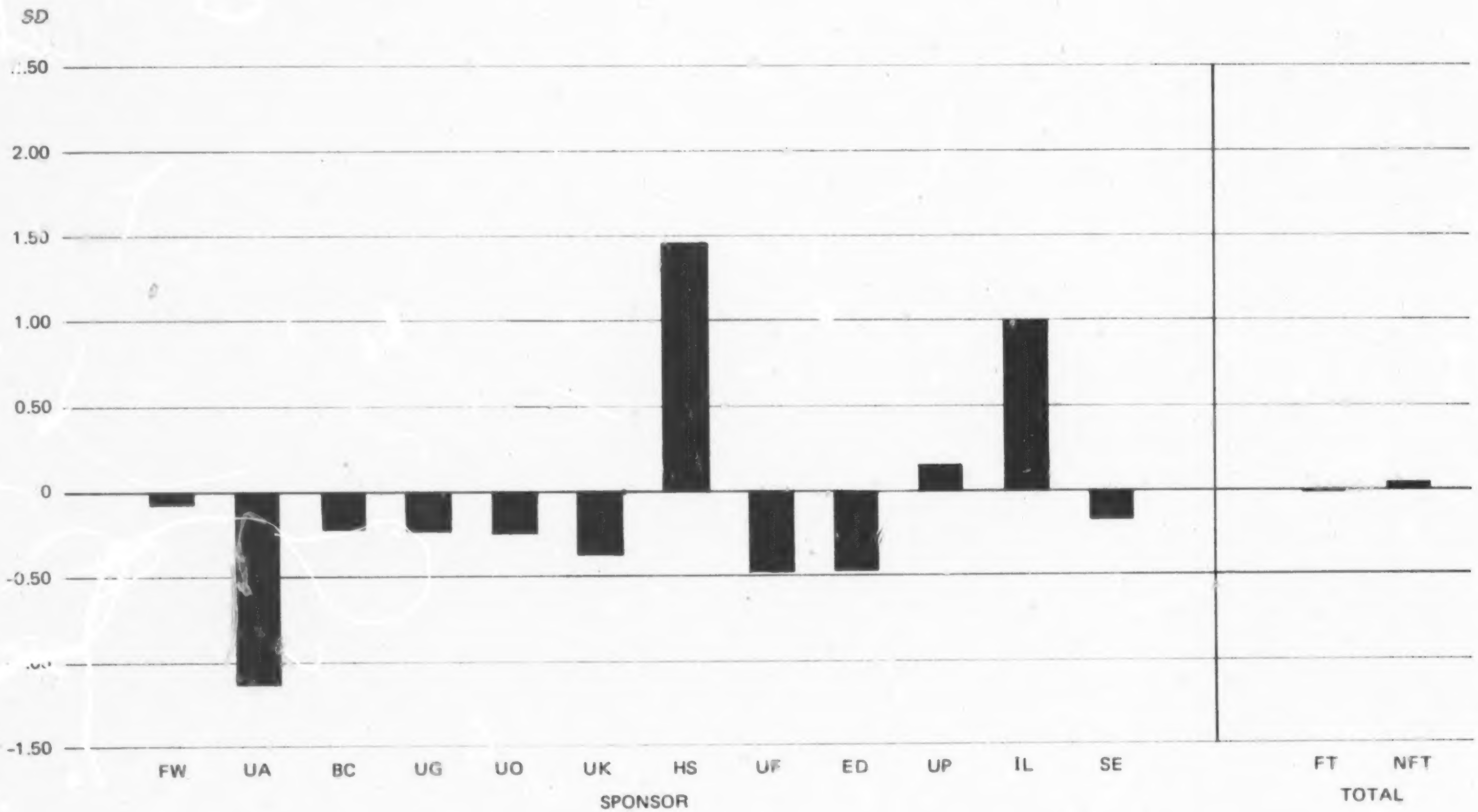

FIGURE VII-9 COMPARISON BY SPONSORS OF FACTOR 9, CHILDREN NOT ENGAGED WITH ADULTS

themselves on reading or arithmetic and occasionally offered or received some advice about work from other children. The U. Arizona children exhibited the least amount of this behavior.

4. Replicability of Results with Previous Analysis

One of the objectives of this section of the analysis was to replicate the techniques used in the analysis of the Spring 1971 data, to assess the comparability of results from year to year. In the previous analysis, the classroom scores on variables were averaged for individual sponsors and for all Follow Through and all Non-Follow Through. An analysis was performed in Spring 1972 similar to that which appears in Appendix L of this report. Appendix L displays sponsor and Follow Through/Non-Follow Through classroom means and range tests of sponsor differences. Unfortunately, for purposes of comparability, the data were not gathered in quite the same manner as before. In 1971 there were no individual child-focused observations. The observer focused on a given activity and recorded the highlighting interactions and behaviors of adults and children together in characterizing the activity. In Spring 1972, the observations were more strictly divided into two days of observations for recording teacher/aide behavior and two days for recording the behavior of eight preselected children. In absolute terms, therefore, the data are not comparable. The observed frequencies of all events would be expected to differ between the two years as a result of the difference in observation techniques.

In spite of the aforementioned problem with absolute values, it was clear to those familiar with both data sets that, relative to one another, sponsors tended to score high or low on the same kinds of variables in both years. Therefore, a comparison was made of sponsors' relative performance on similar variables using rank-ordering correlations over the same nine sponsors who had been observed in the last two years. The list below shows the results of that analysis and also the relative position of all Follow Through and all Non-Follow Through classrooms on the same variables.

Sixty-eight variables were used in the 1971 observation analysis, while approximately 200 were used in the 1972 analysis. For the most part, this difference resulted from finer definition of the variables of the 1972 analysis, as explained in Chapter V. That is, in 1972 nearly all the variables were operationally defined into the smaller subsets that made up the 1971 variable definitions. Table VII-37 lists the variables that represent more than one-third of the total variable list used in 1971 and represents the 1972 variables that were defined identically, or nearly so,

Table VII-37

IDENTICAL, OVERLAPPING OR COMBINED VARIABLES 1970-71 and 1971-72

Variable	Correlation of Sponsors' Ranks	Occurrence More Frequent in Follow Through or Non-Follow Through	
		1971	1972
Group activities; singing, dancing, and so on	.51	FT	FT
Arithmetic, numbers; reading, language	.40	FT	FT
Social studies, geography, science, natural world	.28	FT	FT
Games, puzzles	.80	FT	FT
Arts, crafts, sewing, cooking, sawing	.44	FT	FT
Blocks, trucks, dolls, dress-up	.78	FT	FT
Academic activities	.56	FT	FT
Wide variety of activities	.84	FT	FT
Adult with small group in academic activity	.68	FT	FT
Adult with one or two children in all activities	.18	FT	FT
Active play	.30	FT	FT
Adult with large group in academic activity	.40	NFT	NFT
Adult asking children direct question	.43	NFT	FT
Adult asking child open-ended question	.57	FT	FT
Child questioning adult	.77	FT	NFT
Adult communicating with small group	.48	FT	FT
Adult communicating with large group	.45	NFT	NFT
Adult communicating with one or two children	.40	FT	FT
Child negative affect	.38	FT	NFT
Child positive affect	.65	FT	NFT
Adult praise or acknowledgment of children	.76	FT	FT
Adult negative affect	.28	NFT	NFT
Adult positive corrective feedback	.18	FT	FT
All positive affect	.29	FT	FT
Adult informing children	.33	NFT	NFT

and the variables whose operational definitions could be combined to form variables similar to those used in 1971.

The sponsor rank-order correlations and the consistency of relative Follow Through/Non-Follow Through values show fairly good comparability between the two years. When the differences in location of the observed sponsor sites are considered, the consistency is remarkably high. In 1971 all sponsors except ILM were observed at two sites. In 1972 sponsors were observed at only one site, and of the twelve selected sponsors, only five were observed at one of the sites observed the previous year. An examination of the rank-order correlations showed most of the inconsistency in rank to be associated with Bank Street, U. Florida, and EDC, none of whom were observed in 1972 at a site that was observed in 1971. Further, both BC and EDC describe themselves as an approach to teaching rather than a model where all teachers in all sites in different years of implementation would expect to appear similar. U. of Florida, of course, tries to influence parents more than teachers and therefore differences between years would be expected. However, it is noteworthy that U. Kansas occupied nearly identical ranks on each variable from one year to the next, although the observations were in different sites.

As assessed by these variables, overall, the analysis indicates that sponsor implementation and Follow Through/Non-Follow Through differences have been relatively stable from year to year and between sites in one case. The analysis results also suggest reliability in the instrument since the findings in the study in part replicate those of the previous year.

5. Findings Regarding Observed Differences Between Grade Levels and Activities within Sponsor Classrooms

Sponsors can be compared at a variety of levels. The most detailed level would be within each grade level and activity category. The most global level would use all sponsor classrooms at the site without separating grade level and activity category. The latter was the approach used earlier in this chapter to report description of sponsors and factor scores.

Conclusions from these two analyses might differ considerably. More specifically, two sponsors could be quite different within the reading activity (for example, one sponsor asked twice as many questions as the other). But the reading frequency occurring in each sponsor might be such that the marginal distributions of "question asking" could be quite similar. The question of whether sponsors were different depends then, on which level of analysis one chooses as the most appropriate.

The choice of which level to use depends on what is of interest, on the assumptions concerning the homogeneity of the process, and on the sampling procedure. If sponsor processes were homogeneous over grade levels and activity categories, then nothing would be gained by a more detailed analysis.

To compare the distribution of FMOs among activities and grade levels, χ^2 and CATANOVA statistics were computed for each grade level and activity (see Appendices R and J for a detailed discussion of the analysis performed). The data indicate that shifts in the range of all mean frequencies on the selected variables from the analysis of all classrooms at a site, to the analyses separating classrooms by grade level and activities are, at most, moderate. Thus, the changes in the ranking of sponsors on FMO variables from the overall classroom analysis to the detailed analysis of reading, alphabet, and language development would not lead to dramatically different conclusions than those previously stated. See Appendix J for a complete discussion of this analysis.

One general pattern, with a few exceptions, did emerge from an inspection of the mean frequencies by grade levels. Children were engaged in self instruction more often in the upper grade levels. This pattern is especially evident for the sponsors having a kindergarten grade level. Except for U. Arizona and U. Florida, the mean frequency on "Child instructing self" (FMO-23^c) is lowest for the lowest grade level (see Appendix J, p. 9-14). This result may be attributed to the older children either reading more often or studying more independently than the younger children. Younger children in general received more individual attention than older children. These trends seem to be true for most sponsors and thus do not significantly affect their ranking on variables.

From the analysis performed here we conclude that findings regarding sponsors based upon an overall classroom analysis will not be incompatible with findings based upon a grade level activity analysis.

C. Mean Frequency of Variable Occurrence--Follow Through and Non-Follow Through

Since federal funds have supported the Follow Through program, it is of general interest to legislators and policy makers to examine the differences between all Follow Through classrooms and all Non-Follow Through classrooms observed. Although this report is designed primarily to look at the individual planned variations, it is true that they all try to attain the goals stated in the guidelines of the Follow Through

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program with that of Non-Follow Through on the observation variables to see how a Follow Through child in general experiences school differently from a Non-Follow Through child. This section compares Follow Through classrooms and Non-Follow Through classrooms on all the observation variables and reports significant differences found between the two groups. (The differences are shown in Appendix L.)

1. Method

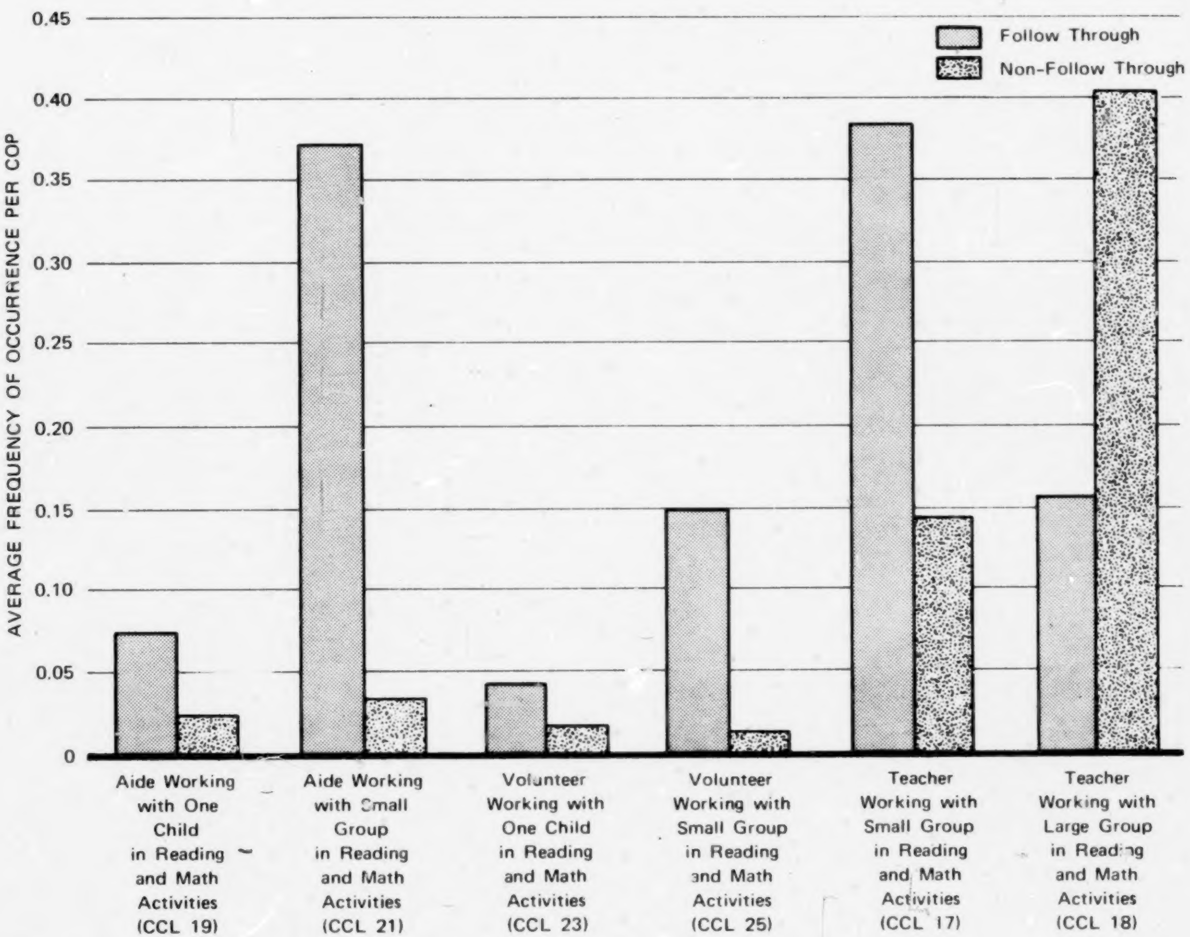
For each variable, histograms of all Follow Through classroom means were obtained and compared with like distributions for Non-Follow Through classrooms. The analysis of variance was again chosen to test for differences. In these comparisons, the number of classrooms (146 Follow Through and 74 Non-Follow Through) and their distributions were fully appropriate to parametric testing in terms of reasonably satisfying assumptions of normality and homogeneity of variance.

2. Results and Discussion

Comparisons of all Follow Through classrooms with all Non-Follow Through classrooms were made over 23 OSF variables, 55 CCL variables, and 120 FMO variables. On the adult-focused observations, significant differences ($p < .05$) were found on 42 of the 55 CCL variables, and 28 of the 120 FMO variables. On the child-focused observations, 30 out of 120 FMO variables were found to be significantly different. Salient differences between Follow Through and Non-Follow Through were identified on variables associated with (1) groupings of teachers, aides, and volunteers with children, (2) classroom activities, (3) child independence, (4) equipment and materials used, and (5) interaction and behavior of adults and children within the classroom.

a. Adult-Child Groupings in Reading and Mathematics

When teaching reading or arithmetic, Follow Through teachers, aides, and volunteers more often worked with individual children or small groups of children than did the adults in the comparison classrooms (see Figure VII-10). This made it possible for children to have more individual attention during academic instruction. Follow Through children also had more individual attention from teachers and aides in other activities, such as science, social studies, arts, crafts, and music.



•Daily frequency is the average frequency observed over two days, 20 different observations per day.

FIGURE VII-10 OBSERVED DIFFERENCES IN ADULT ATTENTION TO CHILDREN DURING READING AND MATH ACTIVITIES FOR FOLLOW THROUGH AND NON-FOLLOW THROUGH CHILDREN

The variables occurring more frequently for Non-Follow Through classrooms are those related to a large group of children working either with the teacher or alone.

b. Classroom Activities

The observations indicate that the Follow Through classrooms had a wider variety of activities occurring at the same time than did the Non-Follow Through classrooms (see Table VII-38).

Table VII-38

OBSERVED DIFFERENCES IN THE OCCURRENCE OF ACTIVITIES IN FOLLOW THROUGH AND NON-FOLLOW THROUGH CLASSROOMS--SPRING 1972[†]

Variable		All Follow Through		All Non-Follow Through		F ratio: Follow Through Non-Follow Through	
		Mean[*]	s.d.	Mean	s.d.	d.f. 1/218	p <
CCL 4	Arithmetic, numbers, math	.379	.210	.192	.114	51.39	.001
CCL 5	Reading, alphabet, language development	.571	.195	.471	.178	13.77	.001
CCL 8	Guessing games, table games, puzzles	.093	.114	.046	.069	10.60	.01
CCL 9	Arts, crafts	.194	.189	.119	.131	9.31	.01
CCL 11	Blocks, trucks	.079	159	.039	.122	3.69	.05
CCL 13	Active play	.022	.063	.007	.018	3.69	.05
CCL 14	Wide variety of activities	1.773	.630	1.234	.487	41.44	.001

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[*] Means are frequency of occurrence per FMO averaged over two days of observation.

[†] Taken from Appendix L2.

The combination of (1) the presence of an adult with an individual child or with a small group of children and (2) a wide variety of activities occurring at the same time suggests that the Follow Through classroom setting was conducive to active student participation.

c. Child Independence

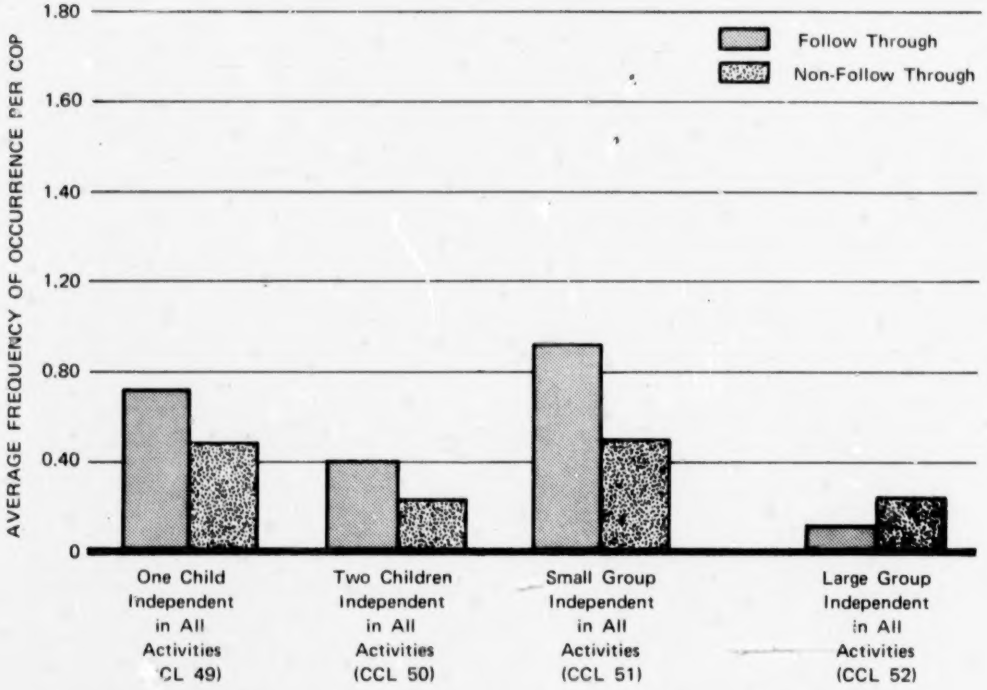
A large group of children working independently suggests a classroom of children working at their desks while the teacher is correcting papers or engaged in other classroom management activities that kept her from being involved with children. It is evident that teachers in Non-Follow Through classrooms spent more time teaching the whole class, while adults in Follow Through separated into small groups or taught individual children. In Follow Through classrooms, even though more adults were available for individual attention when it was needed, the children worked either independently or with a few other children more often than did the children in Non-Follow Through classrooms (see Figure VII-11).

d. Use of Equipment and Materials in Academic Equipment

Compared to Non-Follow Through, a wider range of equipment and materials was used simultaneously in the Follow Through curriculum, audio, tapes, films, records, television, and games. Science equipment, plants, and animals were more often available to Follow Through children, for exploration and inquiry (see Figure VII-12).

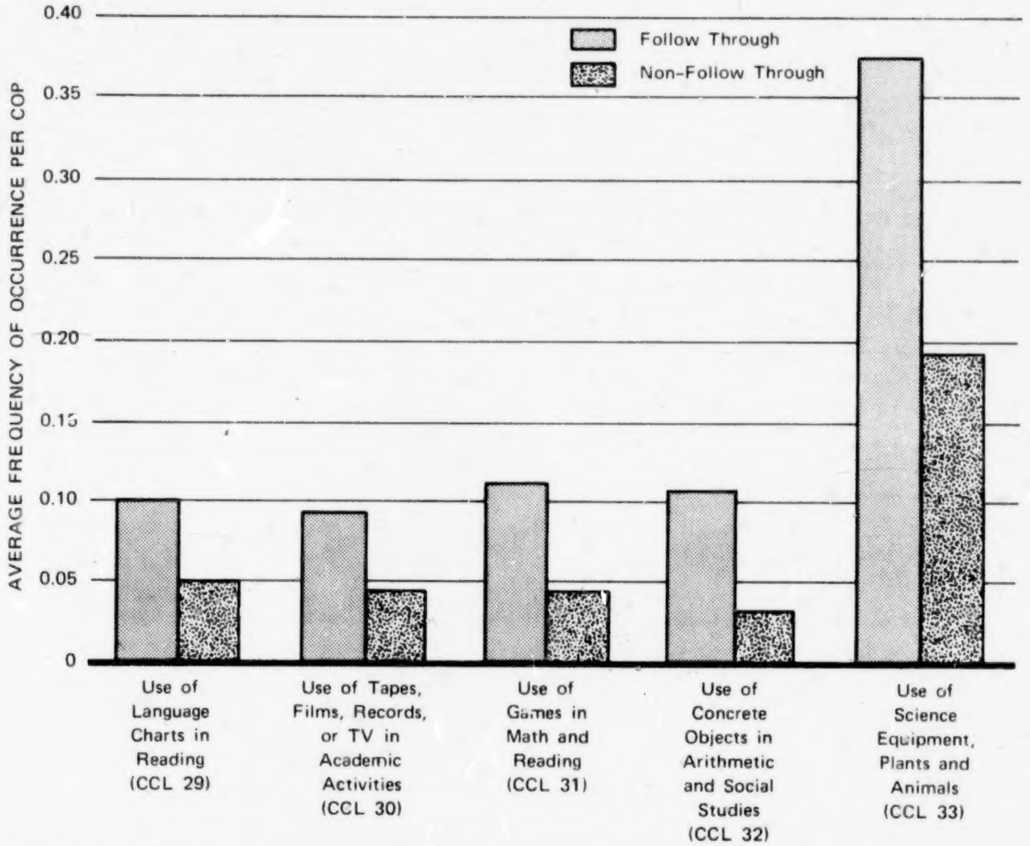
Language experience charts were more often used in Follow Through classrooms. This reading method incorporates the experience of children into a reading, writing, and spelling lesson. Since the subjects are personal to the child and in his language, the charts often provide a strong motivational force to reading.

In their study of mathematics, Follow Through children more often used concrete objects, such as Cuisenaire rods, weights, and measures, to discover quantitative relationships. These materials can be useful when mathematics is presented as a logic process rather than a memory process. For example, the patterns or combinations that equal 10 may be discovered through blocks rather than learned by rote. Children may be helped to move from a concrete experience to abstract paper-pencil computations.



*Daily frequency is the average frequency observed over two days, 20 different observations per day.

FIGURE VII-11 OBSERVED DIFFERENCES IN CHILD INDEPENDENCE BETWEEN FOLLOW THROUGH AND NON-FOLLOW THROUGH CHILDREN



*Daily frequency is the average frequency observed over two days, 20 different observations per day.

FIGURE VII-12 OBSERVED DIFFERENCES IN THE USE OF EQUIPMENT AND MATERIALS IN ACADEMIC INSTRUCTION FOR FOLLOW THROUGH AND NON-FOLLOW THROUGH CHILDREN

e. Adult Focus of Communication

Follow Through adults initiated interactions with children more often than did Non-Follow Through adults, and were more likely to speak to an individual child or a small group. Non-Follow Through adults spoke more often to a large group of children (see Table VII-39).

Table VII-39

ADULT FOCUS OF COMMUNICATION[†]

Variable		All Follow Through		All Non-Follow Through		F Ratio - FT/NFT	
		Mean[*]	s.d.	Mean[*]	s.d.	d.f. 1/218	p <
FMO 73	Adult talking to child	2.96	1.66	1.88	1.14	25.03	.001
FMO 63	Adult interacting with small group	2.26	3.03	.72	.96	18.30	.001
FMO 64	Adult interacting with large group	4.74	4.22	7.55	4.41	21.07	.001[**]
FMO 61	Adult interacting with one child	3.83	1.95	2.72	1.63	17.62	.001

---

[*] Means are frequency of occurrence per FMO averaged over two days.

[**] Occurred more frequently in Non-Follow Through.

[†] Taken from Appendix L-1.

f. Instructional Processes

Non-Follow Through teachers more often instructed or lectured children in both academic and nonacademic activities. Follow Through teachers more often used concrete objects as a part of the instructional process when they taught reading and arithmetic (see Table VII-40).

Table VII-40

INSTRUCTIONAL PROCESSES

Variable		All Follow Through		All Non-Follow Through		F Ratio - FT/NFT	
		Mean*	s.d.	Mean*	s.d.	d.f. 1/218	p <
FMO 81[c]	Adult instructing children	4.87	3.62	5.87	3.47	3.90	.050**
FMO 84[a]	Adult instructing children in academic activity by using objects	.58	1.08	.33	.66	3.48	.100
FMO 78[c]	Adult asking direct questions of children	1.55	1.10	1.30	.88	3.00	.100
FMO 96[c]	Adult making productive statement to children	.17	.27	.11	.15	3.46	.100
FMO 80[c]	Adult responding to children	.35	.31	.17	.14	21.35	.001

---

*Means are frequency of occurrence per FMO averaged over two days.

**Occurred more frequently in Non-Follow Through.

[c] Taken from Appendix L-1

[a] Taken from Appendix L-2

g. Child Behavior

When adults asked children divergent questions, calling for a number of possible responses, such as "What do you think we should do about this problem?" or "How do you think we could earn money for the trip to the zoo?" the trend was for Follow Through children to respond more often than did Non-Follow Through children (see Table VII-41).

Table VII-41

OBSERVED DIFFERENCES BETWEEN FOLLOW THROUGH AND NON-FOLLOW THROUGH CHILDREN ON SELECTED CHILD BEHAVIOR VARIABLES

	All Follow Through		All Non-Follow Through		F Ratio - FT/NFT	
Variable	Mean*	s.d.	Mean*	s.d.	d.f. 1/218	p<
FMO 1[c] Child talking to adult	3.440	2.290	2.290	1.42	15.76	.001
FMO 2[c] Child initiating interaction with adult	2.060	1.430	1.410	1.140	11.630	.001
FMO 4[c] Child initiating interaction with aide	.810	.910	.130	.360	37.750	.001
FMO 19[c] Child responding	3.750	2.080	3.070	1.640	5.990	.05
FMO 20[c] Child responding with academic theme	1.640	1.430	1.180	.950	6.340	.05
FMO 26[c] Child instructing self in academic activity by using objects	.990	1.530	.520	1.450	4.830	.05
FMO 3[a] Child initiating interaction with teacher	3.970	2.410	4.950	2.860	7.640	.01
FMO 5[a] Child talking to other children	.385	1.050	.683	1.104	3.850	.05
FMO 21[a] Child responding to adult open-ended question	.699	.737	.543	.565	2.295	.10
FMO 27[a] Child instructing other children	.272	1.001	.573	1.071	4.259	.05
FMO 32[a] Child commenting to adult	.458	.455	.613	.579	4.707	.05
FMO 35[a] Child participating in general action	.181	.323	.310	.599	4.367	.05
FMO 47[a] Child nonverbal	3.389	2.595	4.264	3.072	4.929	.05

---

*Means are frequency of occurrence per FMO averaged over two days.

[c] Taken from Appendix L-1

[a] Taken from Appendix L-2

Feedback in the form of acknowledgment of good performance or guidance toward a more acceptable answer was used in similar proportions by Follow Through and Non-Follow Through adults (see Table VII-42).

Table VII-42

FOLLOW THROUGH AND NON-FOLLOW THROUGH FEEDBACK SYSTEMS*

Variable	For Behavior	$\bar{X}$ FT	$\bar{X}$ NFT
FMO 90	Praise	.262	.08
FMO 94	Non-task-related acknowledgment	.25	.33
FMO 98	Positive corrective	.10	1.29
FMO 101	Negative corrective	.09	.14
FMO 102	Firm corrective	.17	.28
	For Task-Related Activity		
FMO 89	Praise	1.11	.81
FMO 93	Acknowledgment	2.76	2.83
FMO 99	Positive corrective	1.91	1.79
FMO 103	Negative corrective	.01	.01
	All		
FMO 104	All feedback	8.62	8.46
FMO 115	Adult giving child punishing touch	.02	.03

---

*Taken from Appendix L2.

Observational records of child conversations indicate that, compared to Non-Follow Through, Follow Through children showed more verbal initiative in their communication with adults. One way they displayed this initiative was by making more requests. They were also more responsive than Non-Follow Through children (see Figure VII-13). Non-Follow Through children talked to other children, made general comments to adults, and moved from their desks more often than did Follow Through children. The Non-Follow Through children taught one another more often (see Table VII-38). This would be, of course, a way to compensate for the fewer adults available to them. Even though more adults were available to them, the Follow Through children studied reading and arithmetic independently more often (see Figure VII-11) and used instructional objects in their studies more often (see Table VII-38). In the latter case, they may have been reflecting a modeling effect, since Follow Through adults were more frequently observed using concrete objects to promote learning than were Non-Follow Through adults.

i. Affective Behavior

Both Follow Through and Non-Follow Through children showed more positive than negative behavior; however, Follow Through children received more praise for good behavior than did Non-Follow Through children. The occurrence of misbehavior for both was low (see Table 43). Misbehavior was defined as any behavior eliciting or including crying, yelling, hitting, punching, nasty comments, demeaning remarks, threats, punishing, or destructive acts. When misbehavior did occur, Non-Follow Through children received more negative corrective feedback (see Table VII-42). This indicates that, compared to the Follow Through adults, the Non-Follow Through adults more frequently said such things as "Sit down!" "Stop it!" "Be quiet!" They also withheld privileges more often and punished children by touching them (see Table VII-42).

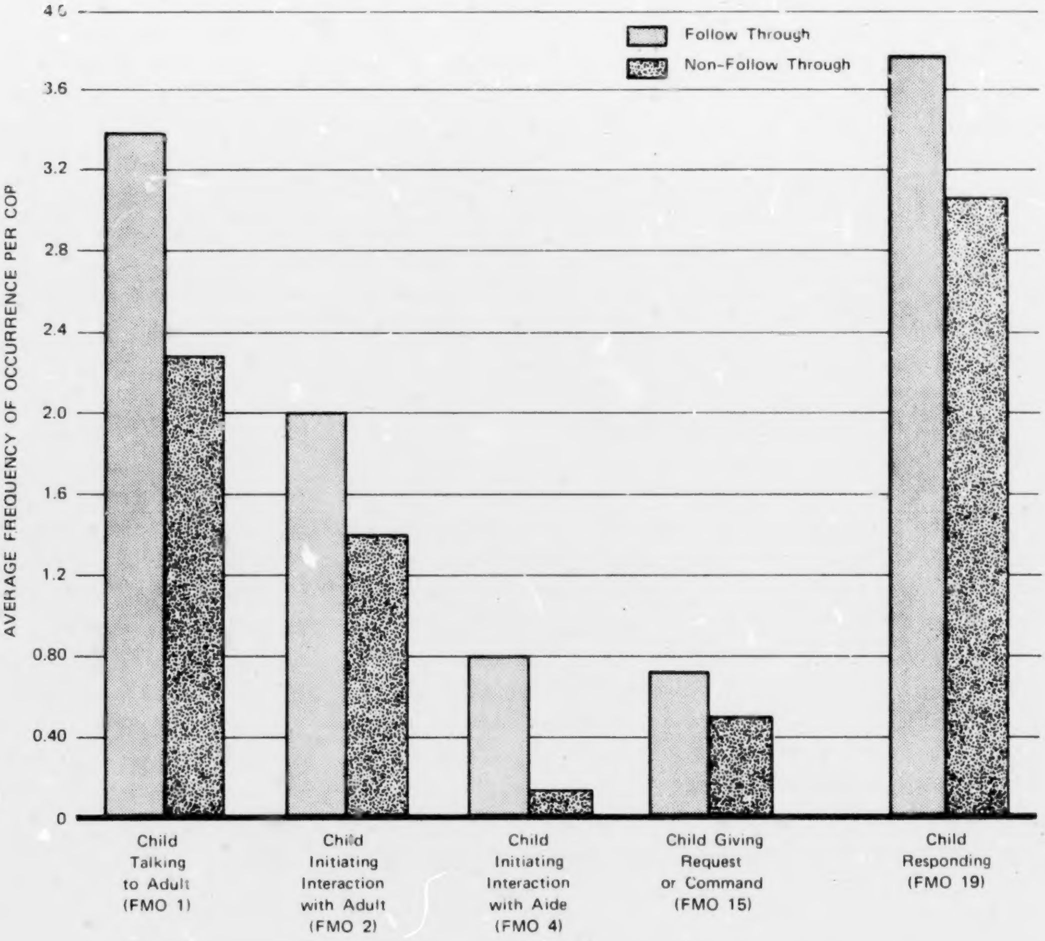


FIGURE VII-13 COMPARISON OF FOLLOW THROUGH AND NON-FOLLOW THROUGH CHILD INITIATIVE AND RESPONSIVENESS

Table VII-43

FOLLOW THROUGH AND NON-FOLLOW THROUGH AFFECTIVE BEHAVIOR

Variable		All Follow Through		All Non-Follow Through		F Ratio - FT/NFT d.f.
		Mean*	s.d.	Mean*	s.d.	1/218
FMO 50[c]	Child showing positive behavior	1.67	1.80	1.32	1.44	2.13
FMO 52[c]	Child showing negative behavior	.23	.44	.30	.98	.59
FMO 110[a]	Adult showing positive behavior	.71	.93	.54	.73	1.77
FMO 112[a]	Adult showing negative behavior	.12	.18	.18	.27	3.75

---

*Means are frequency of occurrence per FMO averaged over two days.

[c] Taken from Appendix L-1.

[a] Taken from Appendix L-2.

j. Summary of Follow Through/Non Follow Through Findings

Overall, Follow Through children were observed to be receiving friendly treatment from adults. The Follow Through school was a place with several adults available to provide individual attention when needed and to support child behavior through praise. In Follow Through classrooms children could work alone or with a few friends. Adults appeared willing to observe and to allow a child to operate independently.

Compared to Non-Follow Through classrooms, Follow Through classrooms exhibited a higher adult/child ratio, a greater number of adults working with individual children and small groups, and a larger number of activities occurring at the same time. Compared to Non-Follow Through children, Follow Through children initiated more communication, responded more to divergent questions, and received more praise and less negative corrective feedback. On the basis of these findings, the conclusion may be reached that child participation in the classroom was greater in the Follow Through setting than in the Non-Follow Through setting. As Follow Through children progressed through the program, they seemed to be having experiences that would aid them in gaining the background experiences needed to perform well in the middle-class-oriented school.

Given that the Follow Through program was initiated to provide children with a more positive school experience, where individual attention would be provided, it is nice to know that the money expended went for materials and additional trained people.

D. Correlation of Process Variables with Child Behavior Outcomes

One of the original premises for classroom observation is that child behavior (as distinguished from child test performance) must be considered and measured as an outcome of an educational program. As has been stated, the observation of the 1972 Follow Through program obtained approximately equal amounts of individual child-focused data and supervising adult-focused data. Thus, the opportunity to relate adult behavior (method/process) to child behavior (outcome) was provided. This analysis must, however, be considered strictly exploratory. Observational data are not available for Fall 1971 and child behavior cannot be considered as caused by adult behavior. Only the fact that the behavior occurred in the same place can be considered. Nevertheless, hypotheses may be generated to test in other studies.

Correlation analysis was chosen as the first step in obtaining insight to these relationships. Adult behavior variables were correlated with child behavior variables across all classrooms in the sample, without regard to either sponsorship or grade level. Attributes considered important in the child growth and development literature (Hoffman, 1964; Sears, Maccoby and Levin, 1957; Mussen, 1960) such as verbal initiative, questioning, responsiveness, independence, cooperativeness, and positive behavior, could be examined by the systematic coding of child behavior on the SRI observation instrument. Variables (FMO 2, 18, 19, 21, 34, 58) taken from child-focused data were correlated with process variables taken from the adult-focused tape.

Children initiate interactions with adults when there is considerable conversation between the adults and children (Table VII-44). Adults who are responsive to children, speaking to one child at a time and offering praise for behavior, seem to be found where children show verbal initiative.

Table VII-44

CHILD-INITIATED INTERACTION WITH ADULT (FMO-2)

Variable		Correlation
FMO 73	Adult talking to child	.36
FMO 74	Adult initiating interaction with child	.36
FMO 80	Adult responding to children	.35
FMO 61	Adult interacting with one child	.34
FMO 90	Adult praising children for behavior	.34
FMO 66	Aide interacting with one child	.31

Children's questioning is also promoted by adults who are responsive to children and speak to one child at a time (see Table VII-45). Praise, either for behavior or scholastic accomplishments, seems to discourage questioning. It may be that quick and frequent praise stimulates the child to give the particular response in the teacher's "hidden agenda" and is not conducive to the development and expression of the child's own questions.

Children generally respond when adults make requests or ask questions of either a small group or a single child. Giving praise to children for accomplishment of tasks also encourages their responsiveness (Table VII-46). It is to be expected that the teachers who initiate a high number of verbal acts toward children will also receive a high number of responses from the children.

Table VII-45

CHILD QUESTIONING (FMO 18)

Variable		Correlation
FMO 80	Adult responding to children	.78
FMO 65	Teacher interacting with one child	.32
FMO 75	Teacher initiating interaction with child	.26
FMO 61	Adult interacting with one child	.25
FMO 89	Adult praising children in task-related activity	-.24
FMO [illegible]8	Adult praising children	-.24

Table VII-46

CHILD RESPONSIVENESS (FMO 19)

Variable		Correlation
FMO 79	Adult asking open-ended question of children	.65
FMO 77	Adult giving request or command to children	.61
FMO 78	Adult asking direct question of children	.55
FMO 89	Adult praising children in task-related activity	.33
FMO 74	Adult initiating interaction with child	.29
FMO 81	Adult instructing children	.27
FMO 75	Teacher initiating interaction with child	.27

Children are responsive to divergent questions when the rate of adult and child conversation is high and when adults speak to one child at a time (Table VII-47). Questions such as, "How do you think that works?" require a one-to-one relationship.

Table VII-47

CHILD RESPONSE TO DIVERGENT QUESTIONS (FMO 21)

Variable		Correlation
FMO 79	Adult asking open-ended question	.89
FMO 75	Teacher initiating interaction with one child	.23
FMO 73	Adult talking to child	.23
FMO 74	Adult initiating interaction with child	.22
FMO 65	Teacher interacting with one child	.21
FMO 61	Adult interacting with one child	.21

Independent children are those children who work at a task without an adult. They may work singularly or in groups. Children are more independent in their studies when adults work with one child at a time, using objects to teach the child, and when adults use a guiding type of correction to change undesired child behavior (Table VII-48).

Table VII-48

CHILD INDEPENDENCE IN ACADEMIC ACTIVITIES (FMO 34)

Variable		Correlation
FMO 98	Adult giving children positive corrective feedback for behavior	.35
FMO 61	Adult interacting with one child	.33
FMO 83	Adult instructing children by using objects	.28

Children more frequently cooperate to work on a joint task when the atmosphere is such that both adults and children ask divergent questions and when the teachers and aides provide individualized attention. Within such situations children listen to each other and are responsive. Adams and Biddle (1970) reported that teacher-led discussions were highly directive and convergent. However, they found that, on the occasions when children worked individually and cooperatively, they raised insightful questions about cause and effect, expressed attitudes, and made interpretations. The results presented in Table VII-49 confirm these findings.

Table VII-49

CHILDREN'S COOPERATION WITH EACH OTHER (FMO 58)

Variable		Correlation
FMO 79	Adult asking open-ended question of children	58
FMO 44	Child attentive to other children	.53
FMO 17	Child asking open-ended question	.46
FMO 98	Adult giving children positive corrective feedback for behavior	.33
FMO 65	Teacher interacting with one child	.27
FMO 19	Child responding	.27

E. Summary

Through a comparison of sponsor goals and observed classroom processes, we conclude that all sponsors have been able to effect specified teaching behaviors and desired child behaviors. Nine factors picture the classrooms of sponsors to be different from each other.

When the data analyzed for Spring 1971 were compated with data presented in this report, a high degree of stability was found within sponsors, sites, and the SRI procedure.

Data combining all classrooms at a site were compared with data by grade level and activities at the same site. It was shown that conclusions drawn from either data set are not incompatible. However, some general changes were found from kindergarten to third grade, such as more individual attention to children at the lower grades and more self-instruction on the part of children at the upper grades.

These same factor scores indicate that when all Follow Through sponsors are combined and compared with Non-Follow Through, little difference is shown in the mean. However, overall Follow Through differs from Non-Follow Through on selected variables relating to individual attention, small groups, activities, materials, and interaction patterns. Much of this is a reflection of the Follow Through guidelines which specify more classroom aides and provides for equipment and materials.

An exploratory study correlating teaching process and child behaviors indicated that desired child behavior, such as verbal initiative, responsiveness, questioning, independence, cooperativeness, and positive behavior, are found where the adults interact with children individually, are responsive to them, and are supportive and provide guidance as they attempt to modify behavior.

VIII RELATIONSHIP OF CLASSROOM PROCESS AND CHILD TEST OUTCOMES

A. Introduction

This chapter presents several analytic attempts to assess the relationships between classroom processes and child test outcomes. This involves defining classroom processes in several ways: by sponsor site, by classroom observation variables, and by factors derived from classroom variables.

First, however, the test variables, or dependent variables, are described, since the reader has so far become familiar only with the sponsors' programs, the classroom observation process variables, and the factor scores, i.e., the independent variables. Next, the covariables are described; these are the variables that would be expected to affect test performance but that are not considered part of the treatment.

The rest of the chapter is organized as follows: In the first regression analysis, the amount of variation in each outcome score accounted for by the covariables alone is examined. Then the variability accounted for by the sponsored program plus the covariables is examined. The regression equation is called the ANCOVA model.* This model is employed to answer the question: How much of the variance in a child's test scores can we account for by knowing which sponsor's program the child was in?

With the ANCOVA model, effects of each sponsor's program on test outcomes are examined. The sponsor, as the independent variable, is related to the child test outcomes, given the covariables. In this way it is possible to see the effect of the sponsor's "package"--which includes everything identified with the sponsor's program (e.g., his method of training teachers, and any special relationship he has reached with the local personnel)--on test outcomes, "other things being equal."

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*The mathematical representations of relationships among variables known as the CO model, the ANCOVA model, and the FACTOR model are quite different from the sponsors' models, which describe intended programs or sets of teacher practices.

Next, the classroom observation (CO) model is introduced and the amount of variance in test scores accounted for by CO variables, over and above that accounted for by the covariables, is discussed. Regression and partial correlation analyses are performed using this CO model to determine the relations of CO process variables to outcomes.

The regression analysis relating factor scores and test outcomes was not carried out in any detail, but some results on the FACTOR model are reported.

An exploratory section is included which examines hypotheses about the effect of groupings of sponsors on outcome measures (using ANCOVA model).

B. Discussion of Unit of Analysis and Sample

The techniques employed in relating classroom process to test outcome are correlation analysis and multivariate linear regression.*

1. Unit of Analysis

The unit of analysis is problematic in this chapter. The unit of observation was the classroom; even the FMOs which focused on individual children were taken only to be combined as representative of children's behavior in a particular classroom. Not nearly enough of a sample of individual child behavior was taken to estimate one child's experiences or to make any statements about the relationship between individual experiences and individual test performance.

Although it is the effects of FT on the children, not on the classrooms, that are of ultimate interest, it was not appropriate to use the child as the unit in this case. Thus, it appeared that the classroom was the reasonable unit of analysis. However, to use the classroom as the unit would have necessitated working with extremely small samples, especially in the case of NFT (See Tables VIII-1 and VIII-2 which show that for example in second grade, only 38 or 14% of the NFT children are eligible for inclusion in the analysis--obviously not many classroomsfull). For this reason, the child is the unit of analysis throughout this chapter. Covariables such as age and entering ability are obtained from records kept on each child. CO process or sponsor variables are assigned to a child depending on what classroom or sponsored program he was in and many children share the same score. Too few degrees of freedom would be available to try out the analytic models described if classrooms were to be used as the unit. Thus the following analyses were performed as explorations in the hopes that they would serve as prototypes for the time when the unit of observation and the unit of analysis are the same and when there is a large sample for the units observed.

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*For a detailed exposition of the statistical theory of multivariate regression and correlation see Rao (1965), Anderson (1958), or Morrison (1967).

The reader should be aware of the following effects of using the child rather than the classroom as the unit of analysis:

(1) The sample size is inflated. For example, at the kindergarten level, there are 720 children included in the analysis, but these children represent 42 classrooms.

(2) The variability of outcome scores is inflated.

(3) The coefficients of determination that give the percent of variability accounted for by the regression will, in general, be attenuated.

(4) The partial correlations are probably, but not necessarily, attenuated. Note that the partial correlations are computed with the child as the unit for outcome scores and the classroom as the unit for process scores.

2. Sample

Table VIII-1 displays the number of children for whom roster data were collected and the number of children included in each analysis by grade level/stream and sponsor. Only children who had all outcome test scores and a baseline WRAT score for the entering year were included in the analysis. Comparison of the "total" columns (all children rostered in 1971-72) with the "eligible" columns demonstrates the extent of missing data at each site.

Table VIII-2 displays, for each grade level, the percentage of rostered children who were eligible for inclusion in the analysis. (Percentages for Follow Through are aggregated across sites; site-to-site differences may be determined from data in Table VIII-1.) Not surprisingly, the proportion of eligible children decreases as grade level

Table VIII-1

NUMBER OF CHILDREN INCLUDED IN THE ANALYSES BY SPONSOR AND GRADE LEVEL/STREAM

Entering Grade: Kindergarten

	Kindergarten		First Grade		Second Grade	
Site Sponsor	Total	Eligible	Total	Eligible	Total	Eligible
FW	95	73	77	47	98	33
UK	108	79	88	60	107	54
HS	109	64	91	59	*	*
ED	103	73	110	63	107	†
UP	78	69	96	77	102	70
IL	109	76	110	21	104	33
SE	107	48	121	29	119	16
Pooled NFT‡	395	238	362	128	269	38
Total	1,104	720	1,055	484	906	244

Entering Grade: First

	First Grade		Second Grade		Third Grade	
Site Sponsor	Total	Eligible	Total	Eligible	Total	Eligible
UA	97	75	105	57	107	32
BC	119	109	122	65	142	43
UG	99	85	114	72	101	46
UO	106	81	100	38	109	45
HS	*	*	70	52	87	48
UF	100	90	129	61	122	42
Pooled NFT‡	265	211	323	143	263	67
Total	786	651	963	488	931	323

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*No classrooms in this grade level/stream.

†No baseline data were collected for this site in Fall 1969.

‡See Section VIII-D for explanation of pooled NFT figures.

Table VIII-2

PERCENT OF ELIGIBLE CHILDREN

Grade Level/Stream	FT	NFT	All
Kindergarten/ek	68	60	65
First Grade/ek	51	35	46
Second Grade/ek	32	14	27
First Grade/ef	84	80	83
Second Grade/ef	54	44	51
Third Grade/ef	38	26	35

level increases. It is also evident from Table VIII-2 that there is quite a bit of missing data in NFT. The severity of the problem caused by missing data is examined in Appendix Q.

Attention is also called to the limited sample of sites; observation was conducted at a single site for each sponsor. Although each classroom in the sample was observed for several days, generalizations are more appropriate to the specific sponsor's site rather than to all sites for that sponsor. For example, kindergarten is the entering grade at some sites and first grade is the entering grade at other sites. Thus, conclusions regarding entering grades need to be viewed as a function of the site as well as of the model.

C. Description of Outcome Measures

The Follow Through test battery administered in Spring 1972 consisted of the following cognitive and noncognitive measures:

(1) Wide Range Achievement Test (WRAT)

(2) Metropolitan Achievement Test (MAT)

(3) Peabody Picture Vocabulary Test (Peabody)

(4) Raven's Coloured Progressive Matrices (Raven's)

(5) Gumpgookies

(6) ETS Version of Locus of Control (Locus)

(7) Intellectual Achievement Responsibility Scale (IAR)

(8) Coopersmith Self-Esteem Inventory (Coopersmith).

Cognitive tests assessing reading and quantitative skills were used at all grade levels. Although components of the battery differed at separate grade levels, the MAT constituted the major test at every level. This test required more than two hours to complete. In addition, two cognitive tests which do not require reading or quantitative skills were used. The Peabody, a test of "verbal intelligence" (see Dunn, 1965), was administered to children in kindergarten and entering first grade. Raven's Coloured Progressive Matrices test was administered to second and third grade pupils. This test was used as a measure of problem-solving performance. Noncognitive measures of locus of control, achievement motivation, and self-esteem were also obtained on the samples. Table VIII-3 displays the different tests administered to each grade level/stream group and the sponsors whose projects were included in each group.

Since test instruments varied considerably from grade level to grade level, scores on outcome measures are not directly comparable across grade levels. For the same reason, baseline test scores are not comparable across grade levels. As a result, the six grade level/streams were analyzed separately. All outcome variables were defined in raw score units. This convention facilitated interpretation of results in that regression weights can be interpreted as the actual score changes (in items) per unit change of the independent variable.

Brief descriptions of the various achievement and attitudinal measures follow. More detailed descriptions on individual tests and statistical information (standard scores, grade level and/or age equivalent scores, data on reliability and validity, and the like) are available in the technical manuals and reports referenced below. However, published norms and estimates of reliability are not, in most cases, directly applicable to the current study since most of the measures were administered in modified versions. Abbreviated forms were used for some tests in order to minimize testing time, and in some cases tests originally developed for use with older children were modified (through simplification in language and/or format) to be suitable for children in kindergarten through third grade.

Issues of reliability and validity for the Gumpgookies, Peabody, and the WRAT tests are discussed in a report on the quality of the data collected in an evaluation of the Head Start Planned Variation program (Walker et al., 1972). In this report it is concluded that affect measures,

Table VIII-3

GRADE LEVEL/STREAMS, SPONSORS, AND DEPENDENT VARIABLE COMBINATIONS

Grade Level/Stream and Sponsor	Dependent Variables			
	Mathematics	Reading	Language and Problem Solving	Affect
Kindergarten				
FW, UK, HS, ED, UP, IL, SE, NFT	MAT Q[*] WRAT Q	MAT R[*] WRAT R	Peabody	Gumpgookies Locus
First Grade/ef				
UA, BC, UG, UO, UF, NFT	MAT Q[†] WRAT Q	MAT R[†] WRAT R	Peabody	Gumpgookies Locus
First Grade/ek				
FW, UK, HS, ED, UP, IL, SE, NFT	MAT Q[†]	MAT R[†]		Gumpgookies Locus
Second Grade/ef				
UA, BC, UG, UO, UF, HS, NFT	MAT Q[§]	MAT R[§]	Raven's	Coopersmith IAR
Second Grade/ek				
FW, UK, ED, UP, IL, SE, NFT	MAT Q[§]	MAT R[§]	Raven's	Coopersmith IAR
Third Grade/ef				
UA, BC, UG, HS, UO, UF, NFT	MAT Q[‡]	MAT R[‡]	Raven's	Coopersmith IAR

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[*] In kindergarten, the MAT Primer was administered.

[†] In first grade, the MAT Primary I was administered.

[§] In second grade, the MAT Primary II was administered.

[‡] In third grade, the MAT Elementary was administered.

including the Gumpgookies, are on the whole less reliable than the cognitive tests. Retest reliability, tester effects, and operating characteristics as a function of mode of administration (group vs. individual) on a population of second and third graders have been investigated for the Raven's, the Locus, and the Coopersmith tests (Emrick, 1973). In that study it was concluded that, with certain modifications, all three instruments were suitable for group administration to children in second and third grades. Problems of response bias were encountered with the Locus test, but the Coopersmith and the Raven's were found to display satisfactory psychometric properties when administered in a group mode.

1. Cognitive Measures

a. Wide Range Achievement Test

The WRAT (Jastak and Jastak, 1965) was administered individually to kindergarten and entering first grade children. Two dependent variables were defined for the WRAT: (1) the sum of scores on subtests measuring quantitative skills, and (2) the sum of scores on subtests measuring reading and language skills, except spelling. Table VIII-4 lists the subtests included in the computation of each dependent variable and the number of items in each subtest. Because the WRAT was modified for inclusion in the Follow Through battery, comparison of the data obtained in this study with published norms on the WRAT subtests is not appropriate.

b. Metropolitan Achievement Test

The MAT was administered on a group basis over a period of several days to all children in this study; the forms used at the various grade level/streams are identified in Table VIII-3. As with the WRAT, separate subscores were computed for quantitative skills and for reading and language skills. Table VIII-4 lists the individual subtests included in each dependent variable.

Although the MAT and WRAT subscores have the same names, they do not necessarily measure quite the same skills. For example, items on the MAT Reading Stories (Primary I and Primary II) and Reading (Elementary) subtests require not only reading skills but comprehension and inferential skills as well.

Table VIII-4

SUBJECTS TAKEN AS DEPENDENT VARIABLES FROM THE MAT AND WRAT BY DEPENDENT VARIABLE AND GRADE

Grade Level/Stream and Dependent Variable	Subtest Name	Number of Items	Total Number of Items
Kindergarten			
MAT Q	Numbers	34	34
WRAT Q	Dot counting	2	
	Reading numbers	7	
	Arithmetic	4	13
MAT R	Listening for sounds	39	
	Reading	28	67
WRAT R	Name spelling	2	
	Recognizing and naming letters	22	
	Word reading	13	37
First Grade/ef			
MAT Q	Mathematics concepts	35	
	Computation	26	61
WRAT Q	Dot counting	2	
	Reading numbers	7	
	Arithmetic	4	13
MAT R	Word knowledge	35	
	Word analysis	40	
	Reading sentences	13	
	Reading stories	28	116
WRAT R	Name spelling	2	
	Recognizing and naming letters	22	
	Word reading	13	37
First Grade/ek			
MAT Q	Mathematics concepts	35	
	Computation	36	61
MAT R	Word knowledge	35	
	Word analysis	40	
	Reading sentences	13	
	Reading stories	28	116

Table VIII-4 (Concluded)

Grade Level/Stream and Dependent Variables	Subtest Name	Number of Items	Total Number of Items
Second Grade/ek, ef			
MAT Q	Mathematics computation	33	
	Mathematics concepts	40	
	Problem solving	34	107
MAT R	Word knowledge	40	
	Word analysis	35	
	Reading sentences	13	
	Reading stories	30	118
Third Grade/ef			
MAT Q	Computation	40	
	Concepts	40	
	Problem solving	35	118
MAT R	Word knowledge	50	
	Reading	45	
	Language	50	145

Items on the MAT mathematics concepts subtests measure a broad range of quantitative skills. For example, items on the Primer subtest ask the child to write the numeral that corresponds to the number of items shown in a picture and to select from pictures of several coins the picture of a quarter. The Primary II test instructs the child to look at a picture of several coins and "Fill in the space under the total amount of money shown." Other items include such skills as reading graphs and calendars, telling time, and measuring length.

c. Peabody Picture Vocabulary Test

The Peabody (Dunn, 1965) was administered individually at the kindergarten and first grade levels. The test is designed to provide an estimate of the subject's verbal intelligence by assessing his ability to identify drawings that correspond to spoken words. The 150 items used in the test are arranged in order of increasing difficulty, beginning with the most familiar words and progressing to the least familiar. For a given item, the child is presented with a verbal stimulus and four alternative drawings. He is asked to put his finger on the drawing which matches or best corresponds to the verbal stimulus--for example, "bed." Criteria for the selection of decoy illustrations change as the test proceeds such that the alternatives become more and more similar. In administering the test, the tester establishes for each child a baseline and a finishing point. The test is terminated when the child makes six errors on eight consecutive items, and his raw score is the highest item completed minus the number of errors.

d. Raven's Coloured Progressive Matrices

An abbreviated version of the Raven's was administered in group mode to second and third grade children in this study. Originally developed as a nonverbal test of intelligence, the Raven's was used here as a problem-solving test. Each item consists of a pattern from which a piece is missing and several alternatives, one of which completes the pattern. The child has to study the pattern, determine its logical components, and identify from among the alternatives the one which completes the pattern.

2. Noncognitive Measures

a. Gumpgookies

The Gumpgookies (Ballif and Adkins, 1968) test, administered individually to children in kindergarten and first grade, is a noncognitive assessment procedure designed to measure the young child's achievement motivation in a wide variety of situations. The test is presented in a story format, with each item depicting two imaginary figures called Gumpgookies who respond differently to a structured situation. The child is told that he has his own Gumpgookie, which looks just like everyone else's Gumpgookie but which follows the respondent around and behaves just the way he does. The tester reads each item, first pointing to each of the two figures and then asking the child to point to his own Gumpgookie. In each item, one of the Gumpgookie figures displays a greater degree of motivation to achieve than the other--for example, one Gumpgookie shows a painting it has made while the other hides its painting. The child's score equals the number of items on which his response indicated higher achievement motivation.

b. ETS Locus of Control

The Locus of Control test, administered individually to children in kindergarten and the first grade, is designed to measure to what degree a child accepts responsibility for his own successes and failures (internal control) or attributes them to causes originating outside himself (external control). The child is shown a series of 20 picture cards depicting children in a school or social situation; in each picture one child asks the other about his or her success or failure in a particular situation. (Four separate sets of cards were used. Each child was shown the set appropriate for his or her race and sex.) The child is then asked to choose between two possible responses to the question, with one representing internal control and the other, external control. For example, to the question "Why did the teacher say your work is very good?" the child chooses between the responses "The teacher said it to be nice" (external control) and "Because I tried not to make any mistakes" (internal control). For this study, scores on the Locus of Control represent the sum of internal control responses.

Intellectual Achievement Responsibility Scale

Locus of control in second and third graders was measured with the IAR (Crandall et al., 1965). Administered on a group basis, this test is designed to assess the extent to which the child accepts responsibility for his successes and failures in intellectual-academic achievement situations. The form used in this study included 20 of the original 34 items. The tester describes a positive or negative achievement experience and two alternative explanations of the event, one denoting internal control and the other indicating external control. The child is asked to mark the response describing the way he really feels. As with the ETS Locus of Control test, scoring is accomplished by summing the items for which the child selects the alternative representing internal control.

d. Coopersmith Self-Esteem Inventory

An abbreviated version of the Coopersmith (Coopersmith, 1967) was administered in group mode to second and third grade children. This self-report instrument is designed to assess the child's feelings of self-esteem--how he feels about himself and school, and how he thinks others feel about him. The tester reads aloud a series of statements (for example, "I'm a good worker") and asks the child to decide whether the statement is "like me" or "not like me." Total raw score represents the number of responses indicating self-esteem ("like me" in the example above).

D. Description of the Covariables

The purpose of this section is twofold:

(1) To describe nontreatment variables, such as demographic characteristics and entering performance of children for which statistical adjustments were made; these variables will be called "covariables," by the usual convention.

(2) To discuss the statistical model by which the observation measures are adjusted for the covariables.

The seven covariables that enter into all analyses in this chapter are:

(1) Age

(2) Sex

(3) Ethnic origin

(4) Months of Head Start experience

(5) Months of Follow Through experience

(6) Days absent; and

(7) Baseline WRAT.

The values of all variables, except baseline WRAT, were obtained from the Spring 1972 rosters.* The baseline WRAT test scores were obtained for the Fall test period of the entering year, as indicated below by grade level and entering grade combination:

Entering Grade	Grade Level (1971-72) K	1	2	3
K	Fall 1971	Fall 1970	Fall 1969	--
EF	--	Fall 1971	Fall 1970	Fall 1969

Two SES covariables, mother's education and occupation of head of household, were included originally, but were dropped later due to problems of missing data (see Appendix Q). Their exclusion is not serious. The child's entering ability appears to index these factors; upon examination in a regression analysis, the SES variables were found not to add much to the prediction of outcome scores.

The covariables may be partitioned into four groups in terms of the types of variables they represent. These four types are: demographic characteristics, months with Head Start or equivalent experience, months of Follow Through experience, and days absent.

The demographic characteristics of the children that were controlled included the age, sex, and ethnic origin variables. Previous work in the field (Terman and Tyler, 1954; Zander and Van Egmond, 1964; Anastasi, 1965) indicates that such characteristics are related to the kind of test outcome scores considered here.

Months of Head Start (or equivalent preschool experience) and the baseline WRAT were included as controls for different entering backgrounds and aptitudes. The baseline WRAT measures the child's entering aptitude, and also indexes the child's home environment.

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*For a description of the rostering procedure, see the SRI Follow Through Evaluation Field Operations Manual for 1971-72.

Months of Follow Through experience were intended to control for factors that may arise from a child's past history in school. This variable takes into consideration such events as transferring in and out of Follow Through and being held back in the same grade, and the child's age. Table VIII-5 documents the differences among sites concerning such histories by indicating the percentage of children for whom a particular pattern of roster data is available, broken down by the percent of the children who changed FT-NFT affiliation, were held back, or were double promoted. These later percentages must be interpreted cautiously, since they depend on the availability of roster data for periods prior to 1971-72. Since children in Non-Follow Through were rostered only in the years when they were tested, comparisons of FT-NFT are especially risky. Some of the children with irregular histories were eliminated from the analysis because of missing data. More precisely, only those children with a baseline WRAT score in the entering grade for the appropriate year and with all outcome test scores, were included in the regression and correlation analyses. Thus, children who had been double promoted, held back in other than the entering grade level, or entered in other than the entering grade level were eliminated from the analysis. For children with irregular patterns who remained in the analysis (especially transfer between Follow Through and Non-Follow Through), the factor "number of months of Follow Through experience" should have adjusted for the difference in time spent in Follow Through.

Finally, "days absent" was included as a covariable in order to adjust for the effects of absence. A relationship was found to exist between this variable and outcome scores in SRI's (1973) evaluation of the Follow Through program (1969-71).

Multivariate analysis of covariance techniques are used to adjust the outcome measures for the effects measured by the covariables. Such a model is based on the assumption that the covariables and dependent variables are linearly related and that there are no interactions between the covariables and the other independent variables. The contrast between such assumptions and the complex relationships that are known to exist among the variables (see, for example, Zander and Van Egmond, 1964) indicates that the results of the analysis of covariance must be interpreted with the utmost caution.

In subsequent analyses the regression coefficient for each dependent variable, including covariables, is assumed to be constant across sponsors within grades, except for those variables in the ANCOVA model that measure sponsor effects. The appropriateness of such an assumption in the ANCOVA model is investigated in Appendix Q. The results show that the multivariate ANCOVA model fits all sponsors about equally well.

Table VIII-5

HISTORY PATTERN OF CHILDREN IN CO ANALYSIS 1970-71
(Percentages of Total)

Sponsor-Grade		FT								NFT							
		Years ID Available								Years ID Available							
		71/72 Only	71/72 70/71	All 3	71/72 69/70 Only	Transfer NFT → FT	Held Back	Double Promoted	Total N	71/72 Only	71/72 70/71	All 3	71/72 69/70 Only	Transfer FT → NFT	Held Back	Double Promoted	Total N
FW	K	99	1	--	--	--	1	--	95	97	3	--	--	--	3	--	58
	1	25	73	3	--	5	1	--	77	27	71	2	--	2	4	--	49
	2	23	11	57	8	2	2	1	98	14	41	37	8	4	2	--	51
UA	1	93	7	--	--	1	6	--	97	95	5	--	--	--	5	--	57
	2	28	70	2	1	1	3	--	105	83	17	--	--	2	--	--	54
	3	3	3	5	1	1	2	1	10[illegible]	98	2	--	--	--	--	--	54
BC	1	97	3	--	--	--	3	--	1[illegible]	88	12	--	--	--	12	--	51
	2	21	73	6	--	2	6	--	1[illegible]	22	78	--	--	5	5	--	37
	3	18	23	54	6	--	2	1	[illegible]2	--	--	100	--	--	--	--	3
	Mixed	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	87
UG	1	94	6	--	--	2	6	--	99	93	7	--	--	2	7	--	43
	2	20	61	17	3	14	20	--	114	18	82	--	--	--	--	--	51
	3	11	10	72	7	1	19	--	101	23	7	68	2	39	2	2	41
UO	1	97	3	--	--	1	3	--	106	96	4	--	--	--	4	--	49
	2	20	71	7	2	1	8	--	100	68	32	--	2	--	2	--	50
	3	16	20	54	10	1	10	--	109	100	--	--	--	--	--	--	53
UK	K	99	1	--	--	--	1	--	108	100	--	--	--	--	--	--	38
	1	23	75	2	--	2	2	--	88	40	60	--	--	--	--	--	45
	2	--	--	--	--	--	--	--	107	62	--	21	17	--	10	--	42
HS	K	99	1	--	--	1	1	--	109	98	2	--	--	--	2	--	58
	1	24	76	--	--	1	--	--	91	80	20	--	--	--	2	--	60
	2	34	66	--	--	--	--	--	70	100	--	--	1	--	1	--	69
	3	10	11	77	1	--	17	--	87	91	4	5	--	4	--	2	56
UF	1	100	--	--	--	--	--	--	100	92	8	--	--	2	9	--	65
	2	38	55	4	3	--	8	--	129	61	37	--	2	--	2	--	62
	3	37	10	42	11	2	2	--	122	66	2	13	19	4	2	--	53
	Mixed	97	3	--	--	--	--	3	35	--	--	--	--	--	--	--	--
ED	K	100	--	--	--	--	--	--	103	100	--	--	--	--	--	--	43
	1	33	67	--	--	--	1	--	110	83	17	--	--	4	--	--	54
	2	10	21	67	2	--	--	--	107	96	2	--	2	4	--	2	50
UP	K	94	6	--	--	--	6	--	78	100	--	--	--	--	--	--	44
	1	10	85	4	--	--	4	--	96	26	50	--	24	--	24	--	50
	2	11	9	83	1	--	1	--	102	--	--	--	--	--	--	--	--
	Mixed	--	--	--	--	--	--	--	--	79	--	2	20	--	--	--	56
IL	K	99	1	--	--	--	1	--	109	99	1	--	--	1	1	--	103
	1	44	54	2	1	1	3	--	110	36	64	--	--	--	--	--	44
	2	29	29	33	10	2	2	--	104	66	14	16	4	4	--	2	56
SE	K	97	3	--	--	3	3	--	107	100	--	--	--	--	--	--	51
	1	45	50	2	2	2	8	--	121	87	13	--	--	12	2	--	60
	2	37	34	26	3	2	9	1	119	77	14	1	7	17	7	7	70

Source: Follow Through Rosters. For a description of these documents, see Stanford Research Institute Manual of Testing Procedures, 1970, 1971 and 1972.

E. Methodology

The methodology for the rest of the chapter includes three separate steps relating process to outcomes. These steps correspond to the three regression models: ANCOVA, CO, and FACTOR models. In the first section, the percent of the variance in test scores accounted for by the covariables alone is compared with the percent accounted for by the covariables plus sponsors (ANCOVA model). Then the sponsors' programs are related to outcomes, using the analysis of covariance. That is, "adjusted" effects of sponsors on the tests are examined. These effects are "adjusted" by the presence of the covariables in the ANCOVA model. In section H, following the discussion of the CO model, an exploratory analysis is presented that tests some hypotheses regarding differences among effects of several sponsor groups--aligned according to the intentions of their programs.

Obviously, in the ANCOVA model, the overall effects of sponsor processes are examined without regard to a detailed characterization of the processes. That is, sponsors are compared in terms of their overall effect on outcome scores, but the salient aspects of their models which give rise to the effects are not known. The salient processes can only be determined indirectly. The ANCOVA model, thus, serves two purposes:

(1) To relate process to outcome at the least descriptive level--the nominal classification of the program (i.e., identified by sponsor).

(2) To provide a base of reference for the other two analytic models, by examining sponsor differences and determining the amount of outcome variation that may be accounted for in a more detailed analysis.

The CO model, ideally, characterizes the educational processes by classroom mean frequencies on selected CO variables. The purpose of this model is to find what variables relate to test scores, assuming that the effects of a variable are uniform across classrooms. This model relates processes to outcomes without regard to sponsor. Sponsors could only be compared indirectly by first determining the extent to which CO variables relate to outcome scores and then comparing sponsors on the frequency with which these variables occur.

In this second section, regression statistics are displayed for the covariables alone and the CO model (covariables plus CO variables). The percent of variance in test scores accounted for by the covariables alone is compared with the percent accounted for by the covariables plus the CO variables.

Then, to relate classroom observation variables to outcome measures, regression and partial correlation analyses were employed. However, regression analyses were difficult to interpret and only the partial correlations of each CO variable with each test are discussed. The CO model characterizes the educational processes by classroom mean frequencies on selected CO variables.

The purpose of this model is to find what relationship each process variable has to test scores, assuming that the effects of a variable are uniform across classrooms. Still, it is not possible, even with these three analytic steps, to determine whether the process variables that are highly correlated with test outcomes are actually causally related to the outcome. The description of process, when confined to that which can be recorded by the COI, captures the frequency of specific activities, the configuration of the classroom, and the frequency of different types of interactions. The COI was not intended to describe the specific subject matter of a sponsor's curriculum. For many sponsors, such as Far West Lab and EDC, the process is stressed more than the specific content of education. For other sponsors, such as U. Pittsburgh, children pace themselves through programmed materials. No attempt was made to adjust for differences in content exposure among children, since the effects of such differences are practically impossible to describe. This causes no problem in the ANCOVA model, since only the overall sponsor effect is being assessed. In fact, hypotheses concerning differences among sponsors' effects in terms of content and types of curriculum are tested in this section. Problems of interpretation do arise in the CO model, however, since curriculum content, and attitude toward curriculum content, certainly are related to the form that the educational process takes. The conclusions reached concerning the relation of process to outcome scores will be tempered by considerations of the effects of content of different curricula.

The FACTOR model is not discussed at length in this chapter, although regression statistics are presented in Appendix P.

F. ANCOVA Model

1. Regression Statistics

Table VIII-6 contains the regression statistics for the ANCOVA model for each dependent variable. The table includes the coefficients of determination and the critical level at which the test rejected the null hypothesis. (The number of children who entered into the regression, the standard error of estimation and the F statistic of the test of whether

Table VIII-6

REGRESSION STATISTICS FOR ANCOVA MODEL BY TEST

Grade Level/Stream and Test	Covariable $R^2_{Y\|B_1}$ *	Ancova Model $R^2_{Y\|B_1 B_2}$ †	p<
Kindergarten			
MAT Q	.41	.54	.001
WRAT Q	.54	.59	.001
MAT R	.42	.52	.001
WRAT R	.52	.56	.001
Peabody	<.42	.48	.001
Gumpgookies	.10	.10	NS
Locus	.12	.15	.001
First Grade/ef			
MAT Q	.45	.51	.001
WRAT Q	.41	.44	.001
MAT R	.45	.55	.001
WRAT R	.50	.54	.001
Peabody	.37	.39	.01
Gumpgookies	.05	.07	.01
Locus	.15	.16	NS
First Grade/ek			
MAT Q	.59	.68	.001
MAT R	.58	.68	.001
Gumpgookies	.05	.07	NS
Locus	.24	.25	NS
Second Grade/ef			
MAT Q	.49	.54	.001
MAT R	.49	.55	.001
Raven's	.29	.31	NS
Coopersmith	.16	.17	NS
IAR	.07	.10	.01
Second Grade/ek			
MAT Q	.57	.60	.01
MAT R	.49	.53	.01
Raven's	.39	.52	.001
Coopersmith	.10	.12	NS
IAR	.08	.11	NS
Third Grade/ef			
MAT Q	.37	.47	.001
MAT R	.41	.48	.001
Raven's	.27	.29	NS
Coopersmith	.11	.16	.05
IAR	.08	.14	.01

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* $R^2_{Y|B_1}$ is the coefficient of determination for the regression of a dependent variable Y on the covariable B_1.

† $R^2_{Y|B_1 B_2}$ is the coefficient of determination for the regression of a dependent variable Y on the covariable B_1 and the independent variable B_2.

the regression coefficients of the independent variables are zero, are shown in the full table in Appendix P.) The coefficients of determination may be interpreted as the proportion of the total sum of squares accounted for by the regression. Thus $R^2Y|B_1$ is the proportion of the total sum of squares that is accounted for by the covariables and $R^2Y|B_2$ is the proportion of the total sum of squares that is accounted for by the covariables and independent variables.

Examination of the first column in Table VIII-6 indicates that the covariables alone account for a substantial amount of the variance in scores obtained on cognitive tests--approximately half of the variance on the subtests of the WRAT and the MAT and about a third on the Raven's and the Peabody. On the measures of affect, however, only about 10% of the variance is explained by the covariables. To a certain extent this may be due to the fact that pretest scores on affective measures were not included among the covariables. On the other hand, since achievement and affect test performances are so highly related, pretest affect scores may not have accounted for any additional variance.

Comparison of the coefficients for the ANCOVA model (Column 2) with the coefficients for the covariables indicates that adding sponsors as independent variables results in accounting for an additional 5-10% of the variance on the achievement measures. On affect measures, adding sponsor designations explains only about an additional 2% of the variance (except for 3/ef, where sponsor labels account for an additional 5-6%).

The final column in the table displays significance levels for tests of the differences between variance accounted for by the covariables alone and variance explained by the covariables plus sponsor labels. On cognitive measures these differences are generally significant at the 0.001 level; the only differences failing to reach significance at least at the 0.01 level are those on the Raven's. On affect measures, the levels of significance are lower, often failing to reach significance at the 0.05 level. The ANCOVA model is, then, somewhat helpful in accounting for variation in scores on cognitive tests . It accounts for less of the variation in noncognitive test scores.

2. Sponsor Effects

Tables VIII-7 through VIII-12 show for each grade level/stream the "adjusted" effects of sponsors; pooled NFT is shown as a separate sponsor. The numbers on the tables do not represent test scores; they are, rather, regression coefficients. Although the value of a single regression coefficient is not meaningful, comparisons among sponsors and

Table VIII-7

SPONSORS' ADJUSTED EFFECTS ON TESTS FOR KINDERGARTEN

Independent Variable	MAT Q	WRAT Q	MAT R	WRAT R	Peabody	Gump-gookies	Locus
FW	-2.62	.08	-4.23	.81	4.99	2.27	.75
UK	6.11	2.01	7.20	2.50	.53	2.65	.47
HS	-2.00	- .32	-1.17	-1.66	5.34	.84	.89
ED	-1.04	.40	.41	.49	-6.58	-3.80	- .75
UP	2.66	.84	2.84	1.21	- .20	-3.10	- .51
IL	.50	.44	2.88	.39	.79	- .22	.52
SE	-2.35	-3.09	-7.75	-3.50	-7.13	- .79	-1.71
NFT	-1.26	- .36	- .19	- .23	2.26	2.14	.34
Constant	6.61	9.30	18.79	11.38	38.14	42.48	7.99
Age	.00	.00	.00	.00	- .01	- .01	.00
Sex	.26	.03	- .56	- .19	1.01	- .12	- .03
Months Head Start experience	- .01	- .02	.10	- .03	.09	- .05	- .05
Months Follow Through experience	.10	.08	.37	- .04	.60	.45	.13
Days absent	- .07	- .03	- .08	- .03	- .09	- .03	- .88
Baseline WRAT	.26	.23	.44	.30	.43	.18	.70
Ethnic origin	- .55	- .31	-1.24	- .10	-2.32	- .04	- .29

Table VIII-8

SPONSORS' ADJUSTED EFFECTS ON TESTS FOR FIRST GRADE/EF

Independent Variable	MAT Q	WRAT Q	MAT R	WRAT R	Peabody	Gump-gookies	Locus
UA	-3.92	- .41	-10.05	-1.73	.80	2.56	.10
BC	.68	- .56	- 1.29	1.70	-2.65	-2.85	- .41
UG	.13	.23	3.51	.82	1.60	1.06	.14
UO	8.09	1.46	18.61	1.98	.89	1.20	.32
UF	-1.97	- .56	- 8.69	-1.92	-1.28	-1.35	.00
NFT	- .30	- .16	- 2.10	- .86	.64	- .62	- .14
Constant	23.40	14.95	64.68	28.61	39.48	43.68	8.46
Age	- .22	- .03	- .67	- .12	.01	.03	.01
Sex	.06	- .09	- 1.04	- .64	1.03	.08	.13
Months Head Start experience	- .02	.03	- .05	.04	- .05	- .02	.01
Months Follow Through experience	- .43	.04	- .39	- .02	.15	- .31	- .01
Days absent	- .09	- .04	- .23	- .10	- .02	.01	.00
Baseline WRAT	.60	.16	1.19	.29	.31	.12	.67
Ethnic origin	-2.98	- .74	- 4.97	-1.12	-2.89	.61	- .60

Table VIII-9

SPONSORS' ADJUSTED EFFECTS ON TESTS FOR FIRST GRADE/EK

Independent Variable	MAT Q	MAT R	Gumpgookies	Locus
FW	- 1.44	- 3.90	.21	.11
UK	5.19	4.29	.89	.48
HS	-10.67	-14.88	.79	.10
ED	- 3.95	- 7.62	.59	- .14
UP	8.12	24.04	- 1.35	.27
IL	- 4.68	- 8.39	- 1.69	- .07
SE	7.98	5.84	- .40	- .41
NFT	- .56	.62	.94	- .34
Constant	17.06	37.07	51.13	10.67
Age	.00	- .01	- .02	.00
Sex	.31	- 1.20	- .12	- .02
Months Head Start experience	.01	.09	.02	.01
Months Follow Through experience	.16	- .04	.01	- .01
Days absent	- .11	- .09	- .03	- .02
Baseline WRAT	.45	.86	.07	.05
Ethnic origin	- 3.80	- 4.63	- .61	- .70

Table VIII-10

SPONSORS' ADJUSTED EFFECTS ON TESTS
FOR SECOND GRADE/EF

Independent Variable	MAT Q	MAT Q	Raven's	Coopersmith	IAR
UA	- 4.15	- 6.12	1.09	- .71	- 1.12
BC	4.18	.54	.12	.19	1.07
UG	.62	.04	- .56	.81	- 1.18
UO	4.78	16.32	- .82	.54	1.46
UF	6.68	5.25	2.16	.10	- .35
NFT	-12.11	-16.03	- 1.99	- .93	.12
Constant	53.85	89.25	12.18	23.33	13.52
Age	- .22	- .62	- .83	- .06	- .04
Sex	.08	- 2.00	.75	- .43	- .02
Months Head Start experience	- .28	- .29	- .01	- .06	.00
Months Follow Through experience	- .90	- 1.03	- .14	- .06	- .02
Days absent	- .22	- .24	- .06	- .05	- .01
Baseline WRAT	.74	1.04	.13	.07	.04
Ethnic origin	-6.07	- 7.82	- 1.73	- 1.02	- .66

Table VIII-11

SPONSORS' ADJUSTED EFFECTS ON TESTS FOR SECOND GRADE/EK

Independent Variable	MAT Q	MAT Q	Raven's	Coopersmith	IAR
PW	- 2.86	3.81	1.84	- .40	- .50
UK	- 2.25	- 9.58	- 3.41	.18	- .01
UP	5.53	7.73	2.34	1.38	1.24
IL	- 6.76	- 7.07	- .13	.41	.00
SE	9.60	3.71	- .60	.73	.20
NFT	- 3.26	1.40	- .04	- 2.30	- .93
Constant	32.28	21.21	11.01	17.52	11.49
Age	.00	- .01	.00	.00	.00
Sex	- .18	- 1.97	.29	.57	.05
Months Head Start experience	- .52	- .60	- .08	- .02	.01
Months Follow Through experience	.25	.75	- .07	- .08	- .04
Days absent	- .22	- .04	- .03	.04	- .01
Baseline WRAT	1.75	2.06	.24	.13	.04
Ethnic origin	- .82	- 3.13	- 1.85	- .39	- .26

Table VIII-12

SPONSORS' ADJUSTED EFFECTS ON TESTS FOR THIRD GRADE/EF

Independent Variable	MAT Q	MAT R	Raven's	Coopersmith	IAR
UA	-15.49	-11.16	.37	.38	- .87
BC	3.29	1.41	.05	.50	.91
UG	7.61	2.05	-1.40	- .61	- .29
UO	8.06	13.24	- .45	1.60	1.63
UF	1.29	- 1.47	.29	1.25	.75
NFT	- 4.76	- 4.07	1.14	- 3.12	- .63
Constant	11.51	11.15	9.18	17.63	9.79
Age	- .01	.00	- .01	.00	.00
Sex	- 2.48	- 4.25	.08	- .81	- .22
Months Head Start experience	.23	.28	.03	- .03	.01
Months Follow Through experience	- .26	- .37	.04	- .18	- .03
Days absent	- .18	- .66	- .02	- .01	.02
Baseline WRAT	1.29	1.57	.28	.19	.08
Ethnic origin	- 6.23	- 8.62	-1.73	- .04	- .67

between sponsors and NFT can be made. Differences between sponsors are expressed in terms of items on each test. For example, in Table VIII-7, Far West's effect in kindergarten on the quantitative section of the MAT is one and one-third items less than the NFT effect; U. Kansas' effect on the same test is seven and one-third items greater than NFT.

The scores and analyses described here yield information relevant only to comparisons among the groups tested in this study. Raw scores on the various outcome measures and on the entering WRAT are displayed in Appendix S. The scores should not be directly compared to published norms and grade level or age equivalent scores, however, because of modifications in test formats and procedures.

The mean sponsor effect (constant) and the effects of the covariables in the equation are also presented on the tables.

The reader should keep in mind that no general conclusions about sponsors can be drawn from these tables. Since sponsor and site are totally confounded, it makes no more sense to say that Sponsor X will increase children's MAT scores over NFT by three items than to say that Site X will increase children's MAT scores three items relative to NFT. The purpose of this analysis is to serve as a paradigm for testing sponsor effects in the future, when several sites per sponsor are sampled.

G. CO Model

This section explores the relationship of process variables to outcome variables without regard to sponsor. First, the selection of specific CO project variables included in the CO model is described. Next, a comparison is made between the amount of variance in test outcomes accounted for by the covariables alone and the amount accounted for by the CO model (covariables plus CO process variables).

Then, since the regression coefficients for the CO model (in which the relationship of a CO process variable to the test outcomes was examined, given all the other process variables and all the covariables) were difficult to interpret, partial correlations (correlation of a single CO process variable, considered as if it were by itself, with a test variable) were examined and discussed.

1. Choice of CO Variables

Of the more than 200 CO variables, a subset was chosen for inclusion in the analyses; this subset had to be quite a bit smaller than the full set for several reasons:

- To simplify the description of process.
- To avoid having almost as many variables as there were data points.
- To avoid problems in interpretation of the results of the regression.

For the FMO variables alone, where the variable itself as well as the focus of observation must be specified, there was a choice among 240 variable-focus combinations.

The primary criterion for selection of the CO variables to be entered into analysis was that the variables adequately describe the sponsors' programs. An attempt was made to designate several CO variables for each sponsor which would (1) be expected, in terms of the sponsor's theory, to relate to outcome test performance and (2) be characteristic of his program and to some extent differentiate it from others. With 12 sponsors and pooled Non-Follow Through data to consider, it was necessary to strike a balance between the goals of description and discrimination, keeping in mind that the variables chosen were to be related to outcome test scores. The emphasis was placed on the FMO variables, since these yield a description of the type and quantity of interactions occurring in the classroom. Variables included from other sections of the instrument were:

- Child to adult ratio (reciprocal of OSF-15)
- Arithmetic, numbers, math (CCL-4)
- Reading, alphabet, language development (CCL-5)
- Wide variety of activities (CCL-14).

The procedure for selection of a subset of the FMO variables had three stages. In the first stage, a set of variables was chosen for each sponsor that was judged to best typify a sponsor's model. A variable was included if it was emphasized in one sponsor's model, as stated by the sponsor (see Appendix B), and was not especially emphasized by the models of other sponsors.

From the sets for each sponsor, two lists of variables were derived, corresponding to the two sets of data, adult focus and child focus. The adult focus list included 34 variables and the child focus list, 44. Of these, 24 variables appeared on both lists.

In the second stage, a variable was deleted from one of the above two lists if:

(1) Its frequency of occurrence was too low. (The criterion for low frequency was that the variable did not occur on at least 95% of the FMOs over all grades.)

(2) It discriminated neither between sponsors nor between Follow Through and Non-Follow Through. (The criterion for discrimination was that the critical level of the F-test be less than or equal to 0.001 on either the comparison of sponsors or the comparison of Follow Through to Non-Follow Through--see Chapter VII.)

(3) One focus of observation was deemed more suitable than the other for those variables that appeared on both lists.

In some cases variables were retained even if they failed Criterion 2 above, when it was judged that the variable was of theoretical interest in education.

In the third stage, variables were considered in groups, such as child self-instruction or adult praise. Each group was then inspected to detect whether some variables overlapped. In such cases, the variable judged of most interest was retained and variables whose definitions overlapped were deleted from the lists. This prevented problems arising in the interpretation of results due to highly correlated independent variables.

Table VIII-13 lists the FMO variables included in the analyses in this section. Also included in this table is some information related to why each variable remained in the analysis. The sponsors for whom each variable was originally selected are not shown.

Table VIII-13

FMO VARIABLES INCLUDED IN THE ANALYSIS

Variable Number	Variable Name	Critical[*] Value for Discrimination of Sponsors p<	Critical[*] Value for Discrimination of FT vs. NFT p<
Adult Focus			
16	Child asking direct question	.001	NS
20	Child responding with academic theme	.001	NS
78	Adult asking direct question of children	.001	NS
79	Adult asking open-ended question of children	.001	NS
81	Adult instructing children	.001	NS
89	Adult praising children in task-related activity	.001	.05
90	Adult praising children for behavior	.001	NS
93	Adult giving task-related acknowledgment to children	.001	NS
98	Adult giving children positive corrective feedback for behavior	.05[†]	NS[†]
100	Adult giving children corrective feedback in task-related activity	.001	NS
105	Adult giving children feedback for academic response to adult question	.001	NS
110	Adult showing positive behavior	.05[†]	NS[†]
Child Focus			
2	Child initiating interaction with adult	.001	.001
8	Child initiating interaction with child	.001	NS
23	Child instructing self	.001	NS
25	Child instructing self by using objects	.01[†]	NS[†]
27	Child instructing other children	.01[†]	NS[†]
38	Child making productive statement	.001	NS
12	Child waiting	.001	NS
50	Child showing positive behavior	.001	NS
88	Adult praising children	.001	NS
111	All negative behavior	NS[†]	NS[†]

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[*] Critical values taken from Appendix L.

[†] This variable was included in the analyses in Section F even though they did not pass the criteria of discrimination of sponsors. The reason for inclusion was that the variable was of educational interest even if it did not discriminate sponsors.

2. Regression Statistics

Table VIII-14 displays the regression statistics for the CO model for each independent variable.* Like Table VIII-6, which shows regression statistics for the ANCOVA model, this table includes the coefficients of determination and the critical level at which the tests rejected the null hypothesis. The interested reader is again referred to Appendix P for the number of children entered into the regression, the standard error of estimation, and the F statistics on the regression coefficients.

Like the earlier table, Table VIII-14 shows both the proportions of variance accounted for by the covariables alone and the proportions explained by the addition of the independent variables. In this case, the independent variables are the CO variables described in the preceding section.

The CO model is similar to the ANCOVA model in that the classroom process variables tend to account for more variability on the achievement measures than on the attitudinal measures, particularly at the lower grade levels. For the achievement measures, the CO variables account for usually about 15% of the variance beyond that explained by the covariables. For the affect measures, the process variables account for about 7% of the variance on the Gumpgookies and the Locus of Control and for somewhat more variance on the IAR and Coopersmith tests used at the upper grade levels (between 10 and 17 percent). Inspection of the significance levels displayed in the final column indicates that the CO model accounted for a significant proportion of the variance over and above that explained by the covariables for the achievement measures (in all cases but one, $p<.001$) and for the affect measures ($p<.01$ in all but three comparisons).

To compare the ANCOVA and the CO models, it appears that

- Covariables alone account for substantial amount of the variance on achievement measures (much less on affect).
- CO model tends to explain more of the remaining variance than does the ANCOVA model.

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*The regression run for second grade/ek using the CO model could not be performed, due to problems of singularity.

Table VIII-14

REGRESSION STATISTICS FOR CO MODEL BY TEST

Grade Level/Stream and Test	Covariable $R^2_{Y \mid B_1}$*	CO Model $R^2_{Y \mid B_1 B_2}$+	CO Model p<
Kindergarten			
MAT Q	.41	.58	.001
WRAT Q	.54	.63	.001
MAT R	.42	.57	.001
WRAT R	.52	.60	.001
Peabody	.42	.53	.001
Gumpgookies	.10	.17	.001
Locus	.12	.16	NS
First Grade/ef			
MAT Q	.45	.61	.001
WRAT Q	.41	.53	.001
MAT R	.45	.70	.001
WRAT R	.50	.67	.001
Peabody	.37	.46	.001
Gumpgookies	.05	.16	.001
Locus	.15	.22	.01
First Grade/ek			
MAT Q	.59	.74	.001
MAT R	.58	.74	.001
Gumpgookies	.05	.11	NS
Locus	.24	.30	.05
Second Grade/ef			
MAT Q	.49	.57	.001
MAT R	.49	.63	.001
Raven's	.29	.38	.001
Coopersmith	.16	.26	.01
IAR	.07	.20	.01
Second Grade/ek			
MAT Q	.57	--	--
MAT R	.49	--	--
Raven's	.39	--	--
Coopersmith	.10	--	--
IAR	.08	--	--
Third Grade/ef			
MAT Q	.37	.58	.001
MAT R	.41	.56	.001
Raven's	.27	.35	NS
Coopersmith	.11	.25	.01
IAR	.08	.25	.001

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* $R^2_{Y \mid B_1}$ is the coefficient of determination for the regression of a set of dependent variables Y on the set of covariables B_1.

\+ $R^2_{Y \mid B_1 B_2}$ is the coefficient of determination for the regression of a set of dependent variables Y on the set of covariables B_1 and the set of independent variables B_2.

however,

- The ANCOVA model has fewer independent variables (12) than the CO model (22). Thus the ANCOVA model, accounting for only slightly less variance in test outcomes than the CO model, seems a little more parsimonious.
- On the other hand, CO variables do somewhat better than sponsor names in accounting for variance on the attitudinal or affect measures.

It is important to keep in mind the total amount of variability in test scores being accounted for by the CO variables since, in the next section, the partial correlations of the classroom process variables with test scores are reviewed and the reader must have some perspective on the size of the correlations between a single one of the CO process variables and a single test variable.

First, a brief discussion of the FACTOR model is in order.

The variables selected to enter into the CO correlation analysis were those which the sponsors emphasized, those which differentiated sponsors' programs, and those which revealed FT-NFT differences.

Since the factor scores had also revealed substantial sponsor differences, and since factors included more variables and combined them differently, it seemed possible that correlations between factor and test scores would be stronger than those between classroom process variable frequencies and test scores. Such an analysis was carried out, using the FACTOR model (the regression equation which included the covariables and the factors in relation to the dependent variables). The results indicated that relationships between test outcomes and factor scores were not quite as strong as those between test outcomes and CO variables. For this reason and because variable frequencies are a great deal easier than factors to interpret, the FACTOR model was dismissed and only CO variables are further discussed. Appendix P shows the regression statistics for the FACTOR model; the reader may wish to compare this model with the others.

It should be noticed, however, that the failure of the factor scores to reveal strong relationships with test outcomes confirms the findings by Soar (1971) mentioned in Chapter I. He found that those factors which most strongly differentiated sponsors were not those most strongly correlated to test outcomes. Our findings confirm his.

3. Partial Correlations

The partial correlations between CO variables and test scores for each grade level/stream are found in Tables VIII-15 through VIII-19. Summary tables showing highest correlations between CO variables and achievement test scores are shown in Table VIII-20 (highest positive correlations) and Table VIII-21 (lowest negative correlations). Correlations were considered to be highest when the relationship between CO variables and achievement scores was .15 or higher. Correlations were considered to be lowest when the relationship between CO variables and achievement scores was -.15 or lower. These correlations are indicated on Tables VIII-20 and -21 for a particular grade level/stream according to the following criteria:

(1) If four or five achievement tests were administered at a particular grade level/stream, a correlation of .15 or higher was required on at least three test scores for highest positive correlation. A correlation of -.15 or lower on at least three test scores was required for lowest positive correlation.

(2) When only two achievement tests were administered to a particular grade level/stream, 0.15 or higher was required for both tests for highest positive correlation. A correlation of -.15 or lower was required for lowest positive correlation. Although a correlation of .15 is not usually considered "high" or "highest," it is used as a relative term in this discussion. The correlation of .15 is to be considered "high" for purposes of comparison of variables and discussion only.

Table VIII-22 shows the trend for tests across grade levels. Table VIII-22a shows positive trends; positive correlations of +.01 and above are indicated by a plus sign (+). Table VIII-22b shows negative trends; negative correlations of -.01 and below are indicated by a minus sign (-). Mixed trends (where correlations between the variables and the achievement test scores are not of the same sign) are indicated by M.

The correlation between the CO variables and the affective measures are consistently low throughout all grades except for two variables at second grade/ef. There, a moderate to high positive relationship is found between frequency of reading and math activities (CCL-4, CCL-5) and the Coopersmith and IAR tests (correlations ranging from .12 to .15).

Table VIII-15

PARTIAL CORRELATION OF CLASSROOM OBSERVATION VARIABLES* WITH TEST SCORES FOR KINDERGARTEN

Classroom Observation Variables		Test						
		MAT Q	WRAT Q	MAT R	WRAT R	Peabody	Gumpgookies	Locus
OSF 15	(Inverse) Number of children per adult	-.12	-.02	-.06	.01	.10	.01	-.01
CCL 4	Arithmetic, numbers, math	.39	.22	.32	.24	-.008	.064	-.006
CCL 5	Reading, alphabet, language development	.04	.198	.039	.185	-.06	.028	.022
CCL 14	Wide variety of activities	-.0[illegible]	-.020	-.142	.020	.046	-.003	.003
Adult Focus								
FMO 16	Child asking direct question	-.077	.030	-.074	-.035	.004	.070	.039
FMO 20	Child responding with academic theme	.329	.272	.277	.235	.057	.063	.030
FMO 78	Adult asking direct question of children	.148	.152	.127	.078	.154	.025	.057
FMO 79	Adult asking open-ended question of children	-.053	-.054	-.124	-.112	.096	.023	-.019
FMO 81	Adult instructing children	-.112	-.102	-.136	-.051	.071	.067	-.053
FMO 89	Adult praising children in task-related activity	.169	.042	.140	-.044	.053	.026	-.006
FMO 90	Adult praising children for behavior	.366	.243	.251	.184	-.017	.033	.026
FMO 93	Adult giving task-related acknowledgment to children	.015	.174	.092	.123	.302	.070	.084
FMO 98	Adult giving children positive corrective feedback for behavior	.462	.037	.011	.058	-.002	.017	.019
FMO 100	Adult giving children corrective feedback in task-related activity	.092	.200	.136	.169	.027	-.007	.024
FMO 105	Adult giving children feedback for academic response to adult academic direct question	.151	.208	.199	.226	.128	.072	.081
FMO 110	Adult showing positive behavior	-.128	-.157	-.173	.024	-.115	.071	-.045
Child Focus								
FMO 2	Child initiating interaction with adult	.241	.100	.200	.153	.022	.047	-.001
FMO 8	Child initiating interaction with different child	-.197	-.154	-.174	-.101	.046	-.062	-.039
FMO 23	Child instructing self	.258	.121	.234	.122	.035	.120	.025
FMO 25	Child instructing self by using objects	.07	.061	.006	-.058	.035	.061	.015
FMO 27	Child instructing other children	-.159	-.087	-.058	.027	- 020	.035	.002
FMO 38	Child making productive statement	-.098	-.223	-.159	-.170	-.177	-.071	-.086
FMO 42	Child waiting	.113	-.069	-.111	-.119	-.046	-.075	.000
FMO 50	Child showing positive behavior	-.018	.014	-.002	.001	.002	-.002	.001
FMO 88	Adult praising children	365	.202	.288	.202	.007	.086	.001
FMO 111	All negative behavior	.100	-.102	-.022	-.002	-.101	.002	-.004
MAT Q		--	.333	.513	.217	.118	.080	.012
WRAT Q		--	--	.305	.399	.327	.139	.022
MAT R		--	--	--	.447	.182	.104	.007
WRAT R		--	--	--	--	.207	.142	011
Peabody		--	--	--	--	--	.185	.029
Gumpgookies		--	--	--	--	--	--	.008
Locus		--	--	--	--	--	--	--

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*See Appendix A for description of variables.

Table VIII-16

PARTIAL CORRELATION OF CLASSROOM OBSERVATION VARIABLES* WITH TEST SCORES FOR FIRST GRADE EF

		Test						
Classroom Observation Variables		MAT Q	WRAT Q	MAT R	WRAT R	Peabody	Gumpgookies	Locus
OSF 15	(Inverse) Number of children per adult	-.46	.021	.005	-.073	.021	.015	-.077
CCL 1	Arithmetic, numbers, math	.196	.162	.261	.238	-.004	.013	-.022
CCL 5	Reading, alphabet, language development	.399	.244	.175	.312	.056	.019	-.025
CCL 14	Wide variety of activities	-.058	.012	-.101	.058	-.107	-.076	-.104
Adult Focus								
FMO 16	Child asking direct question	-.122	-.037	-.200	-.056	-.063	-.017	.027
FMO 20	Child responding with academic theme	.271	.184	.271	.087	.081	.044	.016
FMO 78	Adult asking direct question of children	.001	.002	.037	-.111	.044	.035	-.015
FMO 79	Adult asking open-ended question of children	-.142	-.056	-.125	-.017	.063	.052	-.042
FMO 81	Adult instructing children	-.100	-.082	-.107	-.112	.035	.048	-.032
FMO 89	Adult praising children in task-related activity	.034	-.039	.050	.010	.022	.007	-.013
FMO 90	Adult praising children for behavior	.091	.043	.142	.155	.082	.129	.073
FMO 93	Adult giving task-related acknowledgment to children	.012	-.003	.012	-.018	.131	.109	.030
FMO 98	Adult giving children positive corrective feedback for behavior	-.091	-.170	-.207	-.043	.000	-.010	.052
FMO 100	Adult giving children corrective feedback in task-related activity	.128	.110	.152	.041	-.065	-.080	-.030
FMO 105	Adult giving children feedback for academic response to adult academic direct question	.068	.063	.044	.085	.057	.062	.011
FMO 110	Adult showing positive behavior	-.241	-.194	-.233	-.214	-.081	-.085	-.103
Child Focus								
FMO 2	Child initiating interaction with adult	.248	.153	.289	.199	.032	.067	.009
FMO 8	Child initiating interaction with different child	-.178	-.008	-.153	.002	-.018	.020	.012
FMO 23	Child instructing self	-.091	.002	.026	-.077	-.003	-.029	-.111
FMO 25	Child instructing self by using objects	-.257	-.111	-.341	-.219	-.052	.004	.027
FMO 27	Child instructing other children	-.111	.004	-.120	-.087	-.029	-.073	.060
FMO 38	Child making productive statement	.064	.137	.100	.154	.029	-.028	.029
FMO 42	Child waiting	-.068	-.099	-.231	-.191	-.043	-.002	.022
FMO 50	Child showing positive behavior	.031	-.010	-.006	.076	-.068	-.097	-.009
FMO 88	Adult praising children	.200	.082	.216	.132	.019	.063	-.005
FMO 111	All negative behavior	-.134	-.031	-.242	-.103	.015	.000	.059
MAT Q		--	.356	.579	.405	.237	-.006	.175
WRAT Q		--	--	.298	.424	.236	.088	.186
MAT R		--	--	--	.521	.256	.074	.132
WRAT R		--	--	--	--	.183	.092	.128
Peabody		--	--	--	--	--	.174	.231
Gumpgookies		--	--	--	--	--	--	.178
Locus		--	--	--	--	--	--	--

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*See Appendix A for description of variables.

Table VIII-[illegible]

PARTIAL CORRELATION OF CLASSROOM OBSERVATION VARIABLES* WITH TEST SCORES FOR FIRST GRADE EK

Classroom Observation Variables		Test			
		MAT Q	MAT R	Gumpgookies	Locus
OSF 15	(Inverse) Number of children per adult	.044	.094	.012	-.024
CCL 4	Arithmetic, numbers, math	.093	.066	.023	.033
CCL 5	Reading, alphabet, language development	.259	.120	.059	.004
CCL 14	Wide variety of activities	.121	.136	.074	.012
Adult Focus					
FMO 16	Child asking direct question	-.019	-.029	.008	.005
FMO 20	Child responding with academic theme	.352	.355	-.097	.012
FMO 78	Adult asking direct question of children	.035	.130	.003	-.009
FMO 79	Adult asking open-ended question of children	.216	-.129	.031	.027
FMO 81	Adult instructing children	.000	.035	.025	.024
FMO 89	Adult praising children in task-related activity	.125	.196	-.044	-.003
FMO 90	Adult praising children for behavior	.112	-.012	-.009	.028
FMO 93	Adult giving task-related acknowledgment to children	.066	.255	-.074	-.010
FMO 98	Adult giving children positive corrective feedback for behavior	.122	.027	.038	-.007
FMO 100	Adult giving children corrective feedback in task-related activity	.303	.399	.001	.012
FMO 105	Adult giving children feedback for academic response to adult academic direct question	.204	.309	-.032	-.023
FMO 110	Adult showing positive behavior	-.023	-.059	-.067	.019
Child Focus					
FMO 2	Child initiating interaction with adult	.213	.210	-.021	.026
FMO 8	Child initiating interaction with different child	-.171	-.233	-.033	-.022
FMO 23	Child instructing self	.133	.173	.014	.012
FMO 25	Child instructing self by using objects	-.141	-.127	.040	-.003
FMO 27	Child instructing other children	-.180	-.186	-.101	-.023
FMO 38	Child making productive statement	.031	-.107	-.012	-.017
FMO 42	Child waiting	-.294	-.180	.002	-.012
FMO 50	Child showing positive behavior	-.037	-.139	.004	-.032
FMO 88	Adult praising children	.155	.106	-.013	.037
FMO 111	All negative behavior	-.143	-.115	-.082	-.046
MAT Q		--	.589	.085	.122
MAT R		-	--	.032	.050
Gumpgookies		--	--	--	.159
Locus		--	--	--	--

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*See Appendix A for description of variables.

Table VIII-18

PARTIAL CORRELATION OF CLASSROOM OBSERVATION VARIABLES* WITH TEST SCORES FOR SECOND GRADE EF

Classroom Observation Variables		Test				
		MAT Q	MAT R	Ravens	Coopersmith	IAR
OSF 15	(Inverse) Number of children per adult	-.071	-.194	-.023	-.109	.015
CCL 4	Arithmetic, numbers, math	.190	.157	.010	.120	.120
CCL 5	Reading, alphabet, language development	.288	.286	.039	.151	.123
CCL 14	Wide variety of activities	.033	.063	.091	.109	-.005
Adult Focus						
FMO 16	Child asking direct question	.056	-.029	.004	.010	.016
FMO 20	Child responding with academic theme	.205	.206	-.066	.024	.042
FMO 78	Adult asking direct question of children	.035	.065	--	.014	--
FMO 79	Adult asking open-ended question of children	-.181	-.139	.120	.023	-.094
FMO 81	Adult instructing children	.012	.068	-.090	.039	.015
FMO 89	Adult praising children in task-related activity	.037	.233	--	.095	-.012
FMO 90	Adult praising children for behavior	-.052	--	-.111	.038	.087
FMO 93	Adult giving task-related acknowledgment to children	-.035	-.115	.025	.036	-.090
FMO 98	Adult giving children positive corrective feedback for behavior	-.119	-.103	.043	.024	.051
FMO 100	Adult giving children corrective feedback in task-related activity	.159	.057	-.088	-.012	.094
FMO 105	Adult giving children feedback for academic response to adult academic direct question	.123	.202	-.073	-.012	-.043
FMO 110	Adult showing positive behavior	-.075	-.131	.035	-.141	-.064
Child Focus						
FMO 2	Child initiating interaction with adult	.142	.296	.069	.005	.074
FMO 8	Child initiating interaction with different child	-.201	-.197	--	-.069	-.073
FMO 23	Child instructing self	.171	.174	.055	.035	.035
FMO 25	Child instructing self by using objects	-.186	-.081	.010	.039	-.072
FMO 27	Child instructing other children	.021	.050	-.015	.071	.039
FMO 38	Child making productive statement	-.052	-.096	.026	-.032	-.026
FMO 42	Child waiting	.047	.044	-.038	-.006	.010
FMO 50	Child showing positive behavior	-.065	-.206	.015	-.127	-.046
FMO 88	Adult praising children	.051	.122	-.050	.085	.007
FMO 111	All negative behavior	-.171	-.138	-.005	.046	-.024
MAT Q		--	.596	.336	.303	.228
MAT R		--	--	.280	.282	.265
Raven's		--	--	--	.197	.140
Coopersmith		--	--	--	--	.141
IAR		--	--	--	--	--

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*See Appendix A for description of variables.

Table VIII-19

PARTIAL CORRELATION OF CLASSROOM OBSERVATION VARIABLES* WITH TEST SCORES FOR THIRD GRADE EF

Classroom Observation Variables		Test				
		MAT Q	MAT R	Ravens	Coopersmith	IAR
OSF 15	(Inverse) Number of children per adult	-.079	.020	.061	-.091	-.080
CCL 4	Arithmetic, numbers, math	.009	.068	-.090	.070	.127
CCL 5	Reading, alphabet, language development	.024	.135	-.061	.088	.029
CCL 14	Wide variety of activities	-.197	-.189	.051	.061	-.076
Adult Focus						
FMO 16	Child asking direct question	-.039	-.104	-.068	-.011	-.068
FMO 20	Child responding with academic theme	.151	.220	-.048	.010	.057
FMO 78	Adult asking direct question of children	.118	.118	-.027	.057	.031
FMO 79	Adult asking open-ended question of children	-.395	-.286	.038	-.007	-.180
FMO 81	Adult instructing children	.211	.075	.040	.025	.067
FMO 89	Adult praising children in task-related activity	.141	.111	.083	.041	.093
FMO 90	Adult praising children for behavior	-.062	-.083	.159	--	--
FMO 93	Adult giving task-related acknowledgment to children	-.014	.006	-.052	-.003	.002
FMO 98	Adult giving children positive corrective feedback for behavior	.018	.085	.074	.171	.041
FMO 100	Adult giving children corrective feedback in task-related activity	.011	-.114	.104	--	-.045
FMO 105	Adult giving children feedback for academic response to adult academic direct question	.128	.123	-.067	-.003	.023
FMO 110	Adult showing positive behavior	-.196	-.130	-.071	.011	-.085
Child Focus						
FMO 2	Child initiating interaction with adult	.093	.062	-.161	-.086	.013
FMO 8	Child initiating interaction with different child	-.272	-.252	.109	--	-.217
FMO 23	Child instructing self	.246	.237	-.084	.087	.142
FMO 25	Child instructing self by using objects	-.010	-.078	.006	-.037	-.044
FMO 27	Child instructing other children	-.212	-.169	.063	.062	-.082
FMO 38	Child making productive statement	-.215	-.169	-.028	-.002	-.118
FMO 42	Child waiting	.071	.056	.012	.014	.147
FMO 50	Child showing positive behavior	-.241	-.189	-.031	-.036	-.143
FMO 88	Adult praising children	.020	-.024	.055	-.037	.029
FMO 111	All negative behavior	-.125	-.121	.061	.040	-.121
MAT Q		--	.703	.198	.205	.278
MAT R		--	--	.212	.168	.315
Raven's		--	--	--	.220	.085
Coopersmith		--	--	--	--	.169
IAR		--	--	--	--	--

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[*] See Appendix A for description of variables.

Table VIII-20

HIGHEST POSITIVE CORRELATIONS BETWEEN CLASSROOM OBSERVATION VARIABLES AND ACHIEVEMENT TEST SCORES

(Average of highest positive scores)[*]

		Grade Level/Stream				
Variable		Kindergarten	1/ef	1/ek	2/ef	3/ef
CCL-4	Arithmetic, numbers, math	.29†	.22	--	.18	--
CCL-5	Reading, alphabet, language development	--	.36†	--	.29	--
Adult focus						
FMO 20	Child responding with academic theme	.28	.27	.36	.21	.19
FMO 90	Adult praising children for behavior	.26†	--	--	--	--
FMO-100	Adult giving children corrective feedback in task-related activity	--	--	.35	--	--
FMO-105	Adult giving child feedback for academic response to adult academic direct question	.20	--	.26†	--	--
Child focus						
FMO 2	Child initiating interaction with adult	.20	.22†	.23	--	--
FMO 23	Child instructing self	--	--	--	.17	.25
FMO 88	Adult praising children	.27	--	--	--	--

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[*] Those listed as higher than .15.

[†] Greater variation than .10 between achievement scores.

Table VIII-21

LOWEST NEGATIVE CORRELATIONS BETWEEN CLASSROOM OBSERVATION VARIABLES AND ACHIEVEMENT TEST SCORES

(Average of Lowest Negative Scores)[*]

		Grade Level/Stream				
Variable		Kindergarten	1/ef	1/ek	2/ef	3/ek
CCL-14	Wide variety of activities	--	--	--	--	-.20
Adult focus						
FMO 79	Adult asking open-ended question of children	--	--	--	--	-.35[†]
FMO 110	Adult showing positive behavior	--	-.29	--	--	--
Child focus						
FMO 8	Child initiating interaction with different child	-.17	--	--	-.20	-.26
FMO 25	Child instructing self by using objects	--	-.28	--	--	--
FMO 27	Child instructing other children	-	--	-.19	--	-.20
FMO 38	Child making productive statements	-.18	--	--	--	-.20
FMO 42	Child waiting	--	--	-.24[†]	--	--
FMO 50	Child showing positive behavior	--	--	--	--	-.22

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[*] Those listed as lower than .15.

[†] Greater variation than .10 between achievement scores.

Table VIII-22

TREND OF CORRELATIONS BETWEEN SOME CLASSROOM OBSERVATION VARIABLES AND ACHIEVEMENT TEST SCORES

a. Selected CO Variables Taken from Table VIII-20

Variable	Grade Level Stream					
	Kindergarten	1/ef	1/ek	2/ef	3/ef	Overall
CCL 4 Arithmetic, numbers, math	+	+	+	+	+	+
CCL 5 Reading, alphabet, language development	+	+	+	+	+	+
Adult Focus						
FMO 20 Child responding with academic theme	+	+	+	+	+	+
FMO 90 Adult praising children for behavior	+	+	M	-	-	M
FMO 100 Adult giving children corrective feedback in task-related activity	+	+	+	+	M	+/M
FMO 105 Adult giving child feedback for academic response to adult academic direct question	+	+	+	+	+	+
Child Focus						
FMO 2 Child initiating interaction with adult	+	+	+	+	+	+
FMO 23 Child instructing self	+	M	+	+	+	+/M
FMO 88 Adult praising children	+	+	+	+	M	+/M

b. Selected CO Variables Taken from Table VIII-21

Variable	Grade Level Stream					
	Kindergarten	1/ef	1/ek	2/ef	3/ef	Overall
CCL 14 Wide variety of activities	-	M	+	+	-	M
Adult Focus						
FMO 79 Adult asking open-ended question of children	-	-	M	-	-	-/M
FMO 110 Adult showing positive behavior	-	-	-	-	-	-
Child Focus						
FMO 8 Child initiating interaction with different child	+	-	-	-	-	M
FMO 27 Child instructing other children	-	-	-	-	-	M
FMO 38 Child making productive statements	-	+	M	-	-	M
FMO 42 Child waiting	-	-	-	-	+	M
FMO 50 Child showing positive behavior	M	M	-	-	-	-/M

Key

+ = positive correlation

- = negative correlation

M = correlations not of the same sign, mixed

As mentioned in Part F, the low correlations between the CO variables and affective measures ought not to be interpreted as showing that Follow Through or Non-Follow Through programs make little difference to the affective domain. The problem may well lie in our understanding of affect, and therefore, in our ability to measure it. Whereas educators have improved their cognitive measurement skills over the last 35 years, affective measurement is still in an early developmental stage.

Inability to measure is not suggested as a warrant to overlook important educational areas. Rather, the problem is acknowledged and the results need to be viewed accordingly.

4. Discussion of High Positive Correlations Between CO Variables and Achievement Test Scores

The high positive correlations, shown in Table VIII-20, are discussed in three sections: academic activities, child participation, and adult response to child.

a. Academic Activities

A high relationship is found between frequency of arithmetic activities (CCL-4) and both math and reading scores in kindergarten, 1/ef, and 2/ef. Examination of the MAT Q reveals that, although the test items emphasized quantitative concepts, the vocabulary required a different competence. Thus, ability to score high in the math test also reflected ability in language as well. The correspondence between MAT-R and Q scores is shown in their intercorrelations (.5 to .6 across all grade levels).

The relationship of frequency of reading activities (CCL-5) to achievement test outcomes was high in 1/ef and 2/ef. It is possible that the type of reading-language activities provided in the classroom was appropriate for the type of test items in the reading tests. The example of the test item of the WRAT reading given in Section C suggests that a traditional type of reading experience was offered in primary grades; e.g., children read passages to their teachers and were then asked to infer meaning from the written material. The similarity between outcomes in the reading and mathematics subtests suggests that classroom academic activities lead to good performance on a general achievement measure rather than on two separate areas of achievement.

Consistent with their stated goals, U. Oregon and U. Kansas classrooms show the highest frequency of math and reading activities. Their achievement test scores ranked high among sponsors. Perhaps lack of a stronger correlation may be attributed to the U. Pittsburgh program which is one of the lower in reading time sample, yet is high on outcome measures. It is interesting to note that the three highest programs in mathematics were U. Kansas, U. Oregon, and U. Pittsburgh. Although these programs have a high academic emphasis, this emphasis is accompanied by the strongest amount of child initiation of interaction with adults of any of the twelve programs.

(FT programs as a whole contained significantly more child initiation with adults than the NFT classrooms.)

b. Child Participation

FMO-20[a], "Child responding with academic theme," was positively related to the achievement test outcomes and was the only CO variable which showed consistently high correlations across grade levels.

It may be inferred that two factors contributed to this relationship: (1) similarity of the test focus (academic theme) to the observed classroom content, and (2) activity of the child in responding.

FMO-2[c], "Child initiating interaction with adult," is positively correlated at K, 1/ef, and 1/ek. This relationship suggests the importance of an environment which encourages verbal participation by the child, an indication of active involvement.

FMO-23[c], "Child instructing self," is positively related at 2/ef and 3/ef. It may be assumed that as children progress through grade levels they are better able to instruct themselves.

This variable does not occur most often in the classrooms of models whose achievement scores are among the highest. Since U. Florida ranks highest on this variable in adult focus data and yet does not have a high mean achievement score overall, the possibility that the correlation may be a function of sponsorship is reduced. Perhaps this finding reflects the fact that it is the classroom process itself or a combination of variables which might be effective for academic learning.

In the discussion of each of the child participation variables above (FMO-20[a], FMO-2[c], and FMO-23[c]), the participation of the child is assumed to be basic to the learning process. Although level of participation was not included as a CO variable, the fact that the child responded or was involved rather than remaining passive and perhaps not even receiving information reflects pupil participation. The principle of getting the learner actively involved in order to produce learning seems to be generally accepted among educational psychologists, although it has been discussed at length for its empirical validity (Sheffield, 1961).

However, sheer participation alone is probably not sufficient. The context of participation (e.g., academic emphasis) seems to be an important covariable to participation. The value of pupil participation has also been discussed in Chapter VII.

It is also important to note that the classrooms of sponsors whose achievement test scores were among the highest (U. Oregon, U. Pittsburgh, and U. Kansas) scored high on child participation variables.

c. Adult Response to Child

High positive correlations are found between achievement test scores and CO variables which focus on adult response with praise or feedback.

FMO-90[a], "Adult praising children for behavior," and FMO-88[c], "Adult praising children," measure similar behaviors except that FMO-88[c] is more comprehensive, since it includes praise for task-related behavior as well as general behavior. Both these variables are highly related to achievement tests at the kindergarten level.

The high correlation with praise for behavior emphasizes the importance of a supportive classroom climate where children are helped to develop skills and are praised for their participation. The advantage of the supporting environment is that the child is encouraged to try and is therefore more likely to perform well. These findings are supported in educational literature, although definitions of positive or supportive climate need clarification. Investigations of teacher characteristics do not clearly differentiate between different types of warmth and acceptance, but it may be inferred that teachers who praise children and acknowledge performance approximate the warm and accepting teacher. Although research findings are not consistent, some show that the warm, accepting teachers generate a greater interest in schoolwork (Reed, 1961) and may produce more proficiency in vocabulary and arithmetic (Christensen, 1960).

Correlation between FMO-90^a, "Adult praising children for behavior," and test outcomes was interesting when comparing higher grade levels. Whereas, adult praise for behavior was highly correlated with achievement (.18 to .36) at the kindergarten level, at 1/ef it was moderately correlated (.04 to .15), and at 1/ek less correlated (-.01 to .11). The correlations become less positive through the grades. The correlation with achievement tests is negative at 2/ek, 2/ef, and 3/ef. FMO-88^c follows a similar diminishing correlation pattern.

It is possible that this decrease may be explained by the state of satiation described by Gerwitz and Baer (1958). These researchers confirmed their hypothesis that children receiving substantial amounts of social approval should have their needs in this respect satisfied, and under such a condition social approval as a means of promoting learning would become less effective.

Other possible explanations are (a) social approval may become a much less important reward with older children, and (b) as children become more autonomous in their learning, their own activity becomes self-reinforcing. U. Kansas ranks high in achievement test data and is much higher than other sponsors in the occurrence of these teacher-praise variables (see Appendix L). However, the relationship between these variables and achievement tests diminishes even from K to the 1/ek level (K correlations ranging from .18 to .37 for FMO-88^c; 1 ek correlations ranging from -.01 to .11 for FMO-90^a and ranging from .10 to .15 for FMO-88^c).

A high correlation is found between FMO-100^a, "Adult giving children corrective feedback in task-related activity," and test scores at the 1/ek level. The trend was positive for all other levels except 3/ef.

High correlation is also found between FMO-105^a, "Adult giving child feedback for academic response to academic direct question," and achievement test scores at both K and 1/ek levels.

The high correlations between feedback (FMO-100^a and -105^a) and achievement tests suggest the importance of (a) the high ranking of U. Kansas and U. Pittsburgh model classrooms on this variable, and (b) specificity of reinforcement for academic activity. U. Kansas and U. Pittsburgh incorporate into their lessons reinforcement and corrective feedback contingent on children's correct responses and other valued behavior. This correlation suggests that feedback on a specific task enables the child to perform those tasks accurately, a sequence that contributes to performance of similar tasks in the MAT test battery. These findings support the psychological principle that feedback that gives the child definite direction to specific tasks will increase learning. The value of providing knowledge of results has been well established in the psychological literature (Ammons, 1956; Lumsdaine, 1964).

The findings of the high positive correlations between CO variables and achievement test scores emphasize two well-known psychological principles: (a) actively involve the learner, and (b) provide the learner with feedback on his academic performance.

5. Discussion of High Negative Correlations Between CO Variables and Achievement Test Scores

Negative correlations will be discussed in four parts: (a) child initiating and instructing, (b) child waiting, (c) wide variety of activities, and (d) unexpected findings.

a. Child Initiating and Instructing

FMO-8^{c}, "Child initiating interaction with different child," is negatively correlated with achievement test scores at the K, 2/ef, and 3/ef levels. It is difficult to assess the implications of this relationship since initiating interaction with another child may be indicative of such diverse behavior as introducing thoughtful ideas to a peer or instigating mischief. However, it is possible that even if the interactions are appropriate to academic activities, very young children may usually not be able to persist at academic activities when alone with peers. Unless child-to-child interactions are introduced with careful guidance and purposeful planning, it is to be expected that the activity will not be conducive to task persistence and to the achievement of academic goals.

In addition, the modification of the coding system to identify different kinds of child-to-child interaction will be useful to future analyses.

It is interesting to note that classrooms of the sponsors with high achievement scores (U. Oregon, U. Kansas, and U. Pittsburgh) were in the four lowest ranks on this variable. This suggests a concomitant of other processes that happen to exist in high and low achievement sponsors.

FMO-25^c, "Child instructing self by using objects," is negatively correlated at the 1/ef level. Whereas "Child instructing self" which includes the data under "child instructing self using objects" was positively correlated at 2/ef and 3/ef, the use of objects at the 1/ef level for purposes of self-instruction shows a negative relationship.

Classrooms of the U. Oregon model, which scored high on achievement tests at this grade level, ranked lowest on the occurrence of this variable. Besides the probability that the variable occurs frequently in programs which did not show high achievement test performance, the difference may be attributed to the need for carefully organized teacher planning whenever very young children are expected to use objects in learning processes. What may begin as a meaningful learning situation, with the use of concrete objects for testing and examining, may become boring, a play activity, or a distraction to the purpose of the lesson. Adult guidance is needed too in the manipulation of objects for direction, for suggestion of alternatives, or for reinforcement. Programmed materials, for example, are logically ordered with some built-in feedback, so that older children, especially, may continue to instruct themselves for a relatively long period. Such task-oriented expectation may be unrealistic for beginning first graders working with objects.

The difference between the two sets of findings (FMO-23^c and FMO-25^c) suggests the need for developing observational instruments which can include both fairly gross and fairly specific items.

FMO-27^c, "Child instructing other children," is negatively correlated at 1/ek. The argument used for FMO-8^c, "Child initiating interaction with different child," is applicable to this relationship. Young children are not automatically good teachers of mathematics and reading for their peers. Although some models such as EDC encourage such activity and show a high frequency on this variable, their goals are broad and include development of social interaction skills. Unfortunately, the measures used in this evaluation do not assess some important educational goals which are of great importance to some models.

b. Child Waiting

FMO-42^c, "Child waiting," is negatively correlated at 1/ek but has mixed results across other grade/streams. Most sponsors view "Child waiting" as undesirable and their teacher preparation classes are intended to give adults skill in providing the children with the appropriate activities. It is possible to imagine situations where even well prepared lessons do not always meet the needs of the child throughout the period the child is not involved or participating in any activity. The negative relationship may occur because, as the child is kept waiting, it may be difficult to regain his participation, and the child may be making negative inferences about his own worth and ability during frequent and/or long waiting periods. Thus, little learning is likely to occur.

c. Wide Variety of Activities

CCL-14, "Wide variety of activities," is negatively related to achievement test scores at 3/ef. If tasks and activities such as arts, crafts, etc., were appropriate to the needs and interests of the students, their interest and enthusiasm for these activities would probably be high. Interest in specific tasks, however, is not measured by the tests administered. The occurrence of this variable was especially high in the classrooms of the EDC and Far West models, which consider these activities as central curricula, not extracurricular. These models did not score high on achievement measures.

d. Unexpected Findings

It was not expected that large negative correlations would be found between achievement test scores and the following variables:

- FMO-110[a], "Adult showing positive behavior" at 1/ef;
- FMO-50[c], "Child showing positive behavior" at 3/ef;
- FMO-38[c], "Child making productive statements" at K and 3/ef.

Indices of positive behavior are laughing, smiling, exuberance, and enthusiasm. It is difficult to interpret this negative relationship with positive behavior by adult or child, but the following speculation is offered.

Sponsors who encourage positive affect (U. Arizona and Far West) did indeed show a high occurrence of adult positive behavior. Bank Street and EDC classrooms were highest in FMO-50[c], "Child showing positive behavior." The classrooms of these sponsors were not among the highest in achievement tests and, although no causality may be assumed, the negative relationship between variable and achievement is not then surprising. It is possible that other variables may be responsible for both of these factors. As stated earlier, this evaluation, unfortunately, does not assess the many psychological and educational changes which sponsors such as U. Arizona, Far West, Bank Street, and EDC attempt to bring about.

FMO-38^{c}, "Child making productive statement," is an activity which is viewed as conducive to learning. Productive statement suggests that a child has attended to another's statement about a curricular activity and that he has extended or added to the idea. Information regarding the context in which productive statements are made would be helpful in interpreting correlations. If, e.g., productive statements are primarily on life experience, it would not be expected that this would be noted on reading and math tests.

One may speculate that our tests are not appropriate to the many benefits which may be derived from such conversations regarding tasks. The classrooms of the model which showed a high occurrence of this activity, Southwest Lab, were not among the highest in achievement scores and, thus, the variable may be indexed with sponsors whose achievement scores were low. We would not conclude that because such interactions do not correlate with achievement tests that they, therefore, should be discouraged. Rather, we suggest that at this time we are not able to evaluate their contributions toward child growth.

6. Individual Attention Analysis

Individual attention data were compiled from the following CCL variables:

- CCL-15 Teacher with one child in any academic activity
- CCL-19 Aide with one child in any academic activity
- CCL-23 Volunteer with one child in any academic activity
- CCL-35 Any adult (T, A, V) with one child in any activity.

Because FT programs offered more individual attention, an exploratory analysis of the variables dealing with individual attention given by teacher, aide, or volunteer showed an interesting sequence of positive correlations with achievement test scores (see Appendix F, Partial Correlations Between Test Scores and Individual Attention). Table VIII-23 shows relationships when they were .15 or greater.

Table VIII-23 indicates that attention given to an individual child by an adult is positively correlated with language (receptive vocabulary) skills as measured by the Peabody Test at K, with MAT Q and MAT R (academic) tests at 1/ek, and with Raven's (problem solving) at 2/ek.

It is interesting to note the trend of these correlations (see Appendix F for partial correlations with all tests). Benefits accompanying individual attention seem to follow the pattern of the child's learning processes. At the kindergarten level, the high correlation with the Peabody Picture Vocabulary Test is congruent with the fact that children are engaged in building their basic and common vocabulary.

Having developed some language skills or a medium for learning, the child is then ready (at 1/ek) to apply this to the development of basic reading and math skills. The correlation with academic achievement at 2/ek continues to show a positive (but lower) correlation, but a stronger correlation is found with problem solving skills. One might conclude, on the basis of the trend of these correlations, that individual attention is given to the child for skills and/or that the child most effectively benefits from individual attention which is most appropriate to his developmental needs.

Table VIII-23

HIGHEST AND LOWEST CORRELATIONS BETWEEN INDIVIDUAL ATTENTION VARIABLES AND ACHIEVEMENT TEST SCORES

		CCL Variables Indicating Individual Adult Attention to a Child*			
Grade Level/Stream	Achievement Test	CCL-15	CCL-19	CCL-23	CCL-35
Kindergarten	MAT Q	--	--	+.18	--
	MAT R	--	--	--	-.15
	Peabody	+.19	+.16	--	+.20
First Grade/ek	MAT Q	+.17	+.15	--	+.17
	MAT R	+.33	+.33	+.21	+.33
Second Grade/ef	MAT Q	--	+.17	--	--
	MAT R	--	+.25	--	--
Second Grade/ek	MAT R	--	--	+.17	--
	Raven's	+.26	--	+.23	+.25
Third Grade/ef	MAT Q	--	--	-.22	--

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*CCL-15	Teacher with one child in academic activity.
CCL-19	Aide with one child in academic activity.
CCL-23	Volunteer with one child in academic activity.
CCL-35	Any adult with one child in any activity.

The correlations in Table VIII-23 may also be reflective of the emphases of those sponsors in the K, 1/ek, and 2/ek grade level/ streams. Three of these sponsors who, in particular, emphasize individual attention in their program descriptions are Far West Lab, U. Kansas, and U. Pittsburgh. The Newman-Keuls tables in Appendix L show that U. Pittsburgh, in particular, and Far West Lab are high in observed frequency of individual attention activities.

7. Summary

In general, the partial correlation data suggest that some observation variables are related to achievement scores. The following findings seem especially important:

(1) Frequency of mathematics and reading activities is positively related to achievement test scores. Although the relationship decreases at the highest grade level (3/ef), the trend is consistent and positive across all grade levels. It is suggested that, in addition to frequency of math and reading instruction, the type of instruction in high scoring sites is structured and organized according to the logic of the subject matter and that this type of activity is probably similar to achievement test activities.

(2) Feedback for specifically defined child behavior is positively related to achievement test scores. It is suggested that knowledge of results on academic tasks in particular may predict high achievement in academic test scores.

(3) "Child responding with academic theme" is positively correlated at all grade levels. The consistently high correlations of this variable across grade levels indicate the importance of student participation in academic work. Other variables which also emphasized participation and which were positively related to achievement were "Child initiating interaction with adult" and "Child instructing self."

(4) Correlation between praise for general behavior and achievement decreases through the grades. As defined by the CO system, adult praise of children for general

behavior, as well as for task-related behavior, is suggestive of a supportive classroom climate where children are encouraged and reinforced for their behaviors.

(5) The exploratory analysis of variables dealing with individual attention given to children shows a developmental pattern in its positive correlations with achievement test scores. Positive correlations are found at the kindergarten level with vocabulary, at the 1/ek level with reading and math skills, and at the 2/ek level with problem solving skills. The following elements probably contribute to the positive correlation: the presence of the adults, the appropriateness of their interaction, and/or the readiness of the child to benefit from individual attention when it is appropriate to his developmental need.

H. Exploratory Analysis

1. Procedure and Results

The ANCOVA model was employed to perform some exploratory analyses which involved testing hypotheses regarding the impacts of sponsor programs. Sponsors were grouped into three clusters according to their stated intentions and program emphases. Although each sponsor has developed a unique program and approach to implementation, some similarities between models can be detected and typologies can be formulated that permit identification of groups of sponsors who share some goals or who utilize similar methods and materials. For example, the classification scheme developed by Maccoby and Zellner (1970) differentiates programs emphasizing behavior modification from those focused on cognitive growth and from those oriented toward self-actualization.

From this typology and after review of stated intentions, the Follow Through sponsors with sites at which data were collected for the current study were grouped as follows:

Group A: Self-actualization (socioemotional goals emphasis)

Far West
University of Arizona
Bank Street
EDC

Group B: Behavior Modification (traditional academic goals emphasis)

University of Oregon
University of Kansas
University of Pittsburgh

Group C: Cognitive Growth (emphasis on concept development through experience)

Far West
University of Georgia
High/Scope
ILM

Far West was included in both Group A and Group C because it puts heavy emphasis on problem solving through actual "hands on" experience (similar to the remainder of Group C) and on child-directed activity, intrinsic motivation, and development of self-worth concepts (like others in Group A).[*] The University of Florida model was not included in any of the above groups because it is not essentially a classroom model; SE was excluded because it is a bilingual model focused specifically on language development.

Using the above sponsor groupings, two sets of hypotheses were formulated and two sets of comparisons between groups were performed. The first set of hypotheses predicted differences between sponsors in Group A and those in Group B; the second set contrasted sponsors in Group B with those in Group C. These two sets of comparisons are discussed separately below.

All Follow Through sponsors seek to promote growth in academic and affective areas. Nevertheless, it is possible to distinguish sponsors on the basis of different sequences of events and different emphases they feel will best promote such growth. Group B, for example, will generally assume that reinforcement of behaviors which demonstrate competence in academic skills will build confidence and self-esteem in young children, while Group A will generally assume that cognitive growth and achievement of academic skills will follow naturally when a child's curiosity is stimulated and he has acquired a sense of self-worth. Thus the former set of sponsors (Group B) places primary--or at least, more immediate--emphasis on development of academic skills, while the latter group (Group A) focuses on promoting social and emotional development.

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[*] Although it could be argued that UA and BC have recently placed more emphasis in their programs on concept development through experience than they did in the past, the groupings used in this analysis were based on the sponsors' primary program emphases. For this reason, UA and BC were not included in Group C.

Findings by Bissell (1970), Stearns (1971), and others suggest that a sponsor who designs his program to achieve certain immediate objectives is more likely to attain those objectives than a sponsor who selects other short-term goals. In a study of preschool programs employing IQ tests as the outcome measure, Stearns concluded that "there is evidence that the closer the curriculum is to the kind of content on the intelligence tests, the more likely will be an immediate effect on level of intellectual functioning measured in the children."

Adjusted effects on the cognitive and noncognitive tests administered to FT and NFT children in kindergarten through third grade (displayed in Tables VIII-7 through VIII-12) were used to test the hypothesis that reliable differences in outcomes would be found between those sponsors whose intended focus is primarily on development of traditional academic skills and those whose orientation centers on affective growth. In particular, test scores were examined to determine whether children in programs emphasizing academic goals (Group B) earned consistently higher scores on cognitive measures while children in programs emphasizing socioemotional growth (Group A) scored significantly higher on measures of affect. Finally, it might be expected that these differences would be strongest in the entering grades, since sponsors in Group A generally expect high self-esteem and motivation to result eventually in increased achievement and sponsors in Group B expect reinforcement of behaviors connected with academic success to foster increased motivation and sense of self-worth.

Results of these comparisons are displayed in Tables VIII-24 and VIII-25. Because children in some of the projects enter Follow Through in Kindergarten, while others join the program in the First Grade, all of Group A could not be directly compared with all of Group B. The groups were divided into two subgroups--entering kindergarten projects and entering first grade projects--and comparisons were restricted to children in the same grade level/stream combination.

Table VIII-24 displays the results of multivariate F tests performed to examine differences over all outcome measures for each grade level/stream combination. For projects with pupils entering at kindergarten, contrasts between Group A and Group B were significant ($p < .01$) at both kindergarten and first grade levels. For projects where pupils enter at first grade, Groups A and B differed significantly at all three

Table VIII-24

OVERALL OUTCOME CONTRASTS BETWEEN SPONSOR GROUP A AND SPONSOR GROUP B

a. Entering Kindergarten Stream

Grade Level	Sponsor Group A	Sponsor Group B	f	df	p
Kindergarten	FW, ED	UP, UK	16.32	7 699	≤ .01
First Grade	FW, ED	UP, UK	23.68	4 466	≤ .01
Second Grade	FW*	UP, UK	2.38	5 227	Not significant

b. Entering First Grade Stream

Grade Level	Sponsor Group A	Sponsor Group B	f	df	p
First Grade	UA, BC	UO	6.45	7 632	≤ .01
Second Grade	UA, BC	UO	9.12	5 470	≤ .01
Third Grade	UA, BC	UO	7.24	5 305	≤ .01

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*Baseline data were not collected at ED site in Fall 1969.

Table VIII-25

CONTRASTS BETWEEN SPONSOR GROUPS A AND B ON INDIVIDUAL OUTCOME MEASURES

Grade Level and Contrast	Test									
	MAT Q	WRAT Q	MAT R	WRAT R	Peabody	Raven's	Gumpgookies	Locus of Control	Coopersmith	IAR
a. Entering Kindergarten Stream										
Kindergarten										
Direction	B > A	B > A	B > A	B > A	B > A	--	B > A	A > B	--	--
Magnitude	6.22*	1.18*	6.93*	1.21*	0.96	--	0.54	0.02	--	--
Standard deviation	0.607	0.373	0.020	0.503	1.051	--	1.077	0.379	--	--
First Grade										
Direction	B > A	--	B > A	--	--	--	A > B	B > A	--	--
Magnitude	9.35*	--	10.92*	--	--	--	0.63	0.39	--	--
Standard deviation	1.245	--	2.005	--	--	--	0.827	0.342	--	--
Second Grade										
Direction	B > A	--	B > A	--	--	B > A	--	--	B > A	B > A
Magnitude	4.49	--	4.73	--	--	2.37	--	--	1.15	1.12
Standard deviation	4.393	--	6.531	--	--	1.250	--	--	1.418	0.857
b. Entering First Grade Stream										
First Grade										
Direction	B > A	B > A	B > A	B > A	B > A	--	B > A	B > A	--	--
Magnitude	9.71*	1.94*	24.28*	2.00*	1.81	--	1.35	0.48	--	--
Standard deviation	2.102	0.673	3.974	1.010	1.689	--	1.750	0.638	--	--
Second Grade										
Direction	B > A	--	B > A	--	--	A > B	--	--	B > A	B > A
Magnitude	3.93	--	17.75*	--	--	1.63	--	--	0.59	1.40*
Standard deviation	2.643	--	3.362	--	--	0.842	--	--	0.832	0.556
Third Grade										
Direction	B > A	--	B > A	--	--	A > B	--	--	B > A	B > A
Magnitude	13.80*	--	17.39*	--	--	0.52	--	--	1.23	1.62*
Standard deviation	2.918	--	3.429	--	--	0.872	--	--	0.816	0.577

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* $p < .05$.

levels tested. These results tend to confirm the first hypothesis posed above; that is, with the exception of second grade children entering at kindergarten, scores obtained from children in programs focused on academic achievement differ reliably from those of children in programs emphasizing socioemotional goals.

Table VIII-25 displays the directions, magnitudes, and standard deviations of contrasts between the mean adjusted scores of Groups A and B on individual measures. For example, at the kindergarten level, Group B exceeded Group A by 6.22 units on the quantitative subtest of the MAT, etc. For projects in the entering kindergarten stream, scores of children in Group B exceeded those of children in Group A on all cognitive measures at all three grade levels tested. These contrasts reached significance ($p < .05$) in six of the ten contrasts made, with differences on quantitative and reading measures failing to reach significance only for second grade. Contrasts on noncognitive measures, on the other hand, do not suggest a clear pattern. The direction of the differences is not consistent (except for second grade), and in no case does a contrast reach significance at the .05 level.

The entering first grade projects also display a clear pattern on cognitive measures. Contrasts favored Group B in nine of eleven cases and reach significance in seven instances. Significant differences were found at all grade levels. Neither of the two contrasts favoring Group A on cognitive measures is significant. On noncognitive tests, Group B is again favored, significantly so on the IAR, which specifically examines children's feelings of responsibility for their academic successes and failures.

The data in Table VIII-25 lend strong support to the hypothesis that contrasts on cognitive tests would reliably favor children in programs emphasizing development of traditional academic skills over children in programs focused on socioemotional development. In most cases, differences between the two groups significantly favored Group B on cognitive measures. On noncognitive measures, however, the majority of differences were not in the predicted direction (favoring Group A). Since only two contrasts are large enough to reach significance, the data must be considered inconclusive.

It was suggested above that the contrasts might be expected to diminish in the later grades, since both groups of sponsors ultimately seek to promote both academic and affective growth. No such tendency is readily apparent in the data, however. Although the magnitude of contrasts on the MAT subtests drops from significance at the Kindergarten and first grade/ek levels to insignificance at second grade/ek, this shift may be related to the inclusion of two projects in Group A at the lower levels and only one project at the second grade level.

While all sponsors expect children to be able to handle new situations and to solve problems that they have not confronted before, Group C sponsors emphasize the learning-to-learn processes. Those approaches based on Piagetian theories (HS, UG) and those claiming a problem-solving focus (FW, IL) use concrete materials more often and tend to expose children to a wider variety of materials. Group B, by contrast, focuses more on academic materials.

It might then be expected that the two sponsor groups would have different patterns of performance on the outcome tests. Specifically, Group B would be expected to excel on traditional measures of achievement that utilize memory skills--i.e., the WRAT and the MAT subtests. Children in Group C, on the other hand, would be predicted to perform better on tests like the Peabody and the Raven's, both of which draw upon concepts other than traditional reading and quantitative skills. The Peabody was used here to measure vocabulary by asking the child to match a word with a picture of the object category or action named. The Raven's was used to measure problem-solving by asking the child to select among several alternatives the one that will complete a visual pattern.

The hypotheses examined in the data below pertain only to the academic skills and problem-solving measures. No predictions were made with regard to the noncognitive measures.

Results of examination of this second set of contrasts between sponsor groups are displayed in Tables VIII-26 and VIII-27. As was the case with the first set of contrasts, the groups were divided into subgroups according to entering grade, and contrasts were restricted to children in the same grade level/stream combination.

Table VIII-26 displays F statistics and significance levels for the overall contrasts. The data indicate that in entering-kindergarten projects, Group B differed significantly from Group C at all three grade levels, although the level of significance dropped from .01 for kindergarten and first grade to .05 for second grade. For projects where pupils enter at first grade, significant contrasts ($p < .01$) were found at the second and third grade levels. It is not clear from the data why contrasts between the groups are stronger at some grade levels than at others, however, since both the measures employed and the projects included in Group C varied across grade level.

Table VIII-26

OVERALL OUTCOME CONTRAST BETWEEN SPONSOR GROUP B AND SPONSOR GROUP C

a. Entering Kindergarten Stream

Grade Level	Sponsor Group C	Sponsor Group B	f	df	p
Kindergarten	HS,* IL	UK, UP	3.52	7 699	.01
First Grade	HS, IL	UK, UP	23.77	4 466	.01
Second Grade	FW, IL	UK, UP	3.09	5 227	.05

b. Entering First Grade Stream

Grade Level	Sponsor Group C	Sponsor Group B	f	df	p
First Grade	UG	UO	1.44	7 632	Not significant
Second Grade	UG, HS	UO	8.98	5 470	.01
Third Grade	UG, HS	UO	6.64	5 305	.01

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* First Grade was originally the entering year for the HS project. In 1970-71, however, kindergarten was added. This project appears, therefore, in both the entering kindergarten and the entering first grade subgroups.

Table VIII-27

CONTRASTS BETWEEN SPONSOR GROUPS B AND C ON INDIVIDUAL OUTCOME MEASURES

Grade Level and Contrast	Test									
	MAT Q	WRAT Q	MAT R	WRAT R	Peabody	Raven's	Gumpgookies	Locus of Control	Coopersmith	IAR
a. Entering Kindergarten Stream										
Kindergarten										
Direction	B > C	B > C	B > C	B > C	C > B	--	C > B	C > B	--	--
Magnitude	5.14*	1.36	4.17	2.49*	2.90	--	0.54	0.72	--	--
Standard deviation	1.331	0.821	2.244	1.107	2.311	--	2.367	0.831	--	--
First Grade										
Direction	B > C	--	B > C	--	--	--	B > C	B > C	--	--
Magnitude	14.33*	--	25.80*	--	--	--	0.22	0.36	--	--
Standard deviation	1.698	--	2.739	--	--	--	1.127	0.469	--	--
Second Grade										
Direction	B > C	--	B > C	--	--	C > B	--	--	C > B	B > C
Magnitude	6.44*	--	0.71	--	--	1.39	--	--	0.75	0.87
Standard deviation	2.974	--	4.423	--	--	0.846	--	--	0.959	0.581
b. Entering First Grade Stream										
First Grade										
Direction	B > C	B > C	B > C	B > C	C > B	--	B > C	B > C	--	--
Magnitude	7.96*	1.22	15.10*	1.16	0.70	--	0.14	0.18	--	--
Standard deviation	3.234	1.035	6.117	1.556	2.596	--	2.693	0.469	--	---
Second Grade										
Direction	B > C	--	B > C	--	--	C > B	--	--	C > B	B > C
Magnitude	8.21*	--	17.89*	--	--	1.18	--	--	[illegible].25*	1.84*
Standard deviation	2.714	--	3.448	--	--	0.867	--	--	0.857	0.571
Third Grade										
Direction	B > C	--	B > C	--	--	C > B	--	--	B > C	B > C
Magnitude	5.84*	--	15.50*	--	--	0.36	--	--	1.52*	1.76*
Standard deviation	2.857	--	3.357	--	--	0.852	--	--	0.801	0.566

$^*p < .05$.

Table VIII-27 examines contrasts between mean adjusted scores on the individual measures. With respect to cognitive tests it was hypothesized that Group B scores would exceed those of Group C on measures of traditional academic skills--i.e., the quantitative and reading subtests of the WRAT and the MAT. For both entering-kindergarten and entering-first-grade projects, the data tend to confirm this hypothesis. Means from Group B consistently exceed those from Group C. On the WRAT subtests, administered only to children in the entering grades, only one of four contrasts is significant at the .05 level, but for the MAT, administered at all levels, the contrasts are significant in ten of twelve instances.

Scores obtained on the Peabody and Raven's tests suggest a different pattern. These measures are less dependent on mastery of reading and arithmetic skills than are most traditional achievement tests, and they may therefore be more suitable for use as measures of the kind of cognitive growth toward which sponsor programs in Group C are oriented. The contrasts displayed in Table VIII-27 indicate that the mean adjusted scores of children in Group C programs are higher on the Peabody and the Raven's than are the scores of children in Group B. Any conclusions about these data, however, should be considered highly tentative. Although contrasts favor Group C over Group B in every instance examined, none is large enough to reach significance. Furthermore, comparable tests were not used across all grade levels (the Peabody and the Raven's measure different aspects of cognitive growth).

No predictions were made regarding contrasts between Groups B and C on noncognitive measures. For entering-kindergarten projects the contrasts obtained are small and do not consistently favor either group. Contrasts at the second- and third-grade levels of the entering-first-grade projects do reach significance, favoring Group B at both levels on the IAR.

2. Conclusions

The data examined above produced some interesting patterns of contrasts between sponsor groups. On measures of traditional academic skills (i.e., the WRAT and the MAT), children in programs focusing on development of these skills through reinforcement of desired behaviors and successful performance received significantly higher scores than both children in programs emphasizing socioemotional growth and children in programs focusing on cognitive development through use of concrete materials.

On the Raven's and the Peabody tests, both of which are designed to be relatively independent of traditional reading and quantitative skills, the contrasts between the academic skills group and the socioemotional development group were not significant; on the Raven's, these contrasts were mixed (i.e., neither group was favored consistently). Contrasts on the same measures between the academic skills group and the concept development group consistently, although not significantly, favored the latter.

Although the data base employed in this study of contrasts between sponsor groupings is too small to permit drawing firm conclusions, it appears that tests like the Raven's and the Peabody serve a useful function in the test battery as tests of cognitive development, particularly for children in programs which do not immediately emphasize traditional skills.

The data on noncognitive measures do not, for the most part, reliably differentiate between the sponsor groupings. IAR data from the entering-first-grade projects display the only strikingly consistent pattern, with the U. Oregon project favored over both other groups. Since the U. Oregon model is not included with others in this comparison, site and sponsor are confounded and caution should be exercised. However, since U. Oregon specifically advocates praising children for academic success, it is hard to resist concluding that these children received relatively high scores on a measure of their feelings of responsibility for academic performance because their successful performance was associated with rewards.

On the whole, the data examined here suggest that the academic skills group (Group B) has been successful in meeting their immediate goals; the IAR data suggest that for at least one project in Group B, this success is related to internalization of responsibility for academic performance. The success of the concept development group in meeting their primary goals is less clear, but the data display a tendency for Group C to exceed Group B on the Raven's and Peabody measures. Least clear in the data is the degree to which the socioemotional growth group has met its goals, but without better theory and better measures of these goals, it is impossible to know whether this group has not achieved its goals or whether the goals have not been well measured.

In considering the data examined here, it should again be remembered that the data base is very small. Contrasts between sponsor groups were typically based on two groups of two projects each. In some cases a single project was used to represent a whole sponsor group. Judgments about the relative "success" or "failure" of approaches based on academic skills, socioemotional growth or use of concrete materials would require collection of data from several projects within each of the Follow Through models.

IX SUMMARY AND CONCLUSIONS

A. Introduction

The quality of the education a child receives in his early years contributes to characteristics that affect the future pattern of his life. Foremost among the characteristics that schools attempt to influence is the child's capacity for growth in learning. The thrust of Follow Through has been directed toward this end.

Learning is broadly defined by the Follow Through concept to include not only the acquisition of cognitive or academic skills, but also the optimal development of emotional health, social and physical competence, and a sense of self-worth. Follow Through sponsors have operationalized their separate child development and educational philosophies toward these goals and, as a result, have created unique instructional models. These models range from structured programs that are primarily concerned with cognitive growth and development to programs whose free and open environments encourage self-directed activity. The sponsors' models are not easily categorized because they encompass varying combinations of activities, curriculum, and structure. All the models are designed to promote intellectual and social-emotional development, but in varying degrees and with different time schedules.

The aims of this particular study are (1) to assess program implementation at one site for each of 12 sponsors; (2) to search out the relationships between child outcomes and teaching-learning processes; and (3) to estimate which programs incorporate processes found to be positively correlated with desired outcomes.

Each of the 12 sponsors was observed at one site in Spring 1972. Eight sites were located in the south, two in the north and two on the Central Atlantic Coast. For four full days, SRI trained observers observed 146 Follow Through and 74 Non-Follow Through kindergarten through third grade classrooms. Observations were focused upon selected classroom personnel for two days and upon selected children for two days. Because of the limited sample, findings from this study cannot be generalized to other sponsor sites.

B. Implementation

Based upon the observed behavior of teachers and children, the analysis has shown that each sponsor has succeeded in implementing many of his program goals. This success was determined by comparing each sponsor's goals with a descriptive analysis of observed classroom behavior. Further, each sponsor's site was compared with the range of Non-Follow Through classrooms on variables selected to reflect the sponsor's goals. Quartile ranks were assigned for each variable, and a percentage was figured for each sponsor. All sponsors achieved an implementation score of over 80% except for Southwest Lab, which is a bilingual model. Since, as yet, the CO instrument does not contain codes that record two languages being used an important component of the bilingual model is not assessed. We conclude that the instrument is less appropriate to this model than to the others.

A factor analysis was also used to contribute to the understanding of implementation. Using nine factors as critical indices (see Chapter VII), profiles of the results were drawn for each sponsor. These profiles clearly illustrate predicted differences among the models. Such differences were evident even among the models that seem quite similar. For example, the behavior modification models (U. Pittsburgh, U. Kansas, and U. Oregon) were different on Factors 1, 2, and 7. On Factor 1, "Stimulus, response, feedback," U. Pittsburgh and U. Oregon had scores considerably higher than U. Kansas. This difference reflects U. Kansas' divergence from the academic instructional pattern used during "earn time" when a stimulus-response-feedback system is used to the less structured "spend time" where interactions are not prescribed.* On Factor 2, "Small group activities," there were high scores for U. Oregon and U. Kansas, but a below-the-mean score for U. Pittsburgh (which stresses an individualized approach to children). The U. Pittsburgh model scored high on Factor 7, "Individualized work setting."

EDC and Southwest Lab were found to be different from all other sponsors on Factor 3, "Range of emotions in social behavior." This finding is not surprising for the EDC program which emphasizes the value of feelings as well as cognitive development. For the Southwest Lab program, which is attempting to develop language competence and does not emphasize emotional development, this result may be produced by factors inherent in the children's culture rather than in the model. Sponsors who think it is important for children to exhibit verbal initiative, offer opinions, and ask questions (Far West Lab, U. Arizona, High/Scope) were higher on Factors 4 and 6, "Child initiative" and "Divergent questioning."

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*The token economy system of U. Kansas allows children to earn tokens during academic activities. These tokens are exchanged for other activities the child values during spend time.

Previous research suggests that a minor miracle is needed to bring about changes in the classroom behavior of teachers. Bellack (1963) and Hughes (1960) indicate that, although teachers are provided with various kinds of training, they most often continue to exhibit "typical teaching behavior"; i.e., teachers are the active doers who do most of the talking, while children are the passive recipients. Hence, the achievements of the Follow Through sponsors in effecting a change from this pattern (as evidenced by the implementation findings) are impressive. Much of this is probably due to the quality of the pre-service and in-service teacher training and supervision provided by each sponsor (see Appendix K, Sponsor Report of Staff Training).

When individual sponsor's models were compared to Non-Follow Through, they showed wide differences on all factors. However, when the combined Follow Through scores were compared with Non-Follow Through scores, there was little or no difference. As a result, it is strongly suggested that conclusions regarding the success of Follow Through be based upon comparisons of individual sponsors with Non-Follow Through, rather than on combined scores.

Even though important contrasts are lost when all Follow Through sponsors are combined, some important differences emerged when the overall Follow Through program was compared with Non-Follow Through. Thus, the following statements can be made regarding overall implementation. The Follow Through children:

- Had available a wider variety of activities;
- Received more individual attention;
- Had available a wider range of materials and equipment for instructional purposes;
- Received more praise for accomplishments;
- Were more independent;
- Showed more verbal initiative;
- Were more responsive to teacher questions and requests; and
- More often instructed themselves using concrete objects.

The Non-Follow Through children:

- Were more often taught in large groups;
- More often taught each other; and
- Were more often punished.

Overall, Follow Through children are observed to experience school as a less punitive environment, as a place where several adults are available to provide individual attention when needed, and as a place that supports child behavior in positive ways. It is also a place where a child can work either alone or with a few friends. In general, the responsible adults appear willing not to interfere in a child's activities and to allow him to operate independently. The availability of a wide variety of activities provides the child with a broad range of options to develop his interests or to learn new ones. In addition, there are many opportunities to develop the basic reading, writing, and arithmetic skills. Compared with other school environments, there are more games to play, more materials to explore, and more machines to operate, but these opportunities do not occur at the expense of academic emphasis, which is at a high level. As they progress through the program, the Follow Through children are involved in a broad range of experiences that may provide them with the background needed to perform well in the middle class-oriented school.* On the basis of these observations, it may be concluded that the Follow Through program has succeeded in its goal to provide children with a more positive school experience.

C. Classroom Processes and Child Outcomes

1. Classroom Processes as Related to Child Test Scores

Partial correlations were run on selected variables and test scores. The test scores were adjusted for the baseline WRAT score, sex, ethnic origin, age, days absent, and months in Follow Through and Head Start. About 10-15% of the variability in test scores was accounted for by the process variables, over and above that accounted for by the co-variables (e.g., entering ability, age, Head Start experience). The following adult and child classroom process variables are positively related to achievement test scores:

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*The experience theory of learning for growth and development in children is supported by Dewey 1938, Taba 1962, and Hunt 1961.

- Frequency of math and reading activities
- Adult feedback to children for task-related activities
- Stimulus-response-feedback system in academic activities
- Individual attention.

The high correlation between these variables and achievement tests suggest that a high-achieving classroom environment may be one in which individual attention is given, the child's participation is responded to and reinforced, and there is a frequent occurrence of classroom activities with an academic emphasis.

The pattern of the individual attention variables, which show a high correlation with achievement test scores, is interesting. The correlation shows a developmental sequence such that individual attention correlates with language in kindergarten, with reading and math in first grade, and with problem solving in second grade.

The following process variables from child focus data are positively related to achievement test scores:

- Child response to academic question
- Child instructing self
- Child initiating interactions with adult.

The high positive correlation between these variables and achievement scores suggests the value of the active, involved child (as opposed to the passive recipient). Especially important is the notion of the child as an active participant in academic tasks.

The findings suggest the importance of the following concepts for classroom process:

- Active participation of the student in academic tasks
- Adult specific feedback and reinforcement for child performance of academic tasks
- Individual adult attention for child learning.

2. Classroom Processes and Child Behavioral Outcomes

An exploratory analysis of selected child behavioral outcomes and classroom processes produced some low correlations that may lead to future hypotheses. Attributes thought important in child growth and development were examined by the systematic coding of child behavior on the SRI observation instrument. Variables related to these attributes were correlated with teaching processes. The results are summarized below:

- Questioning behavior on the part of children was more likely to occur where adults were responsive to children; but questioning was limited where adults praised children frequently.
- Children were more responsive to academic questions where adults offered a supportive type of acknowledgment.
- Children were more independent in their studies, initiated more verbal interactions, and were more responsive to divergent questions where adults provided individual attention and were responsive to children.
- Cooperative behavior occurred more often among children where the adults asked open-ended questions and spoke on a one-to-one basis with children.

These data suggest that desired child behaviors, such as verbal initiative, responsiveness, questioning, independence, and cooperation are more likely to be found in an environment where the adults interact with children individually, are responsive to them, are supportive without praising too much and stimulate exploration. This study reports that Follow Through teachers were more often engaged with children on an individual basis than were Non-Follow Through teachers and they also were found to be more responsive when the children ask questions. This adult behavior may be related to the finding that Follow Through children were observed to show more verbal initiative and to be more responsive and independent than the comparison children.*

D. Exploratory Analysis of Sponsor Model Processes and Test Outcomes

In addition to classroom processes, sponsor models were also related to test scores. To examine the varying impact of sponsor models upon child outcomes according to program emphasis, sponsors were placed in the

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*See Chapter VII for a detailed analysis comparing Follow Through with Non-Follow Through.

Maccoby and Zellner (1970) classifications and two sets of hypotheses were formulated regarding outcomes on academic skills, problem solving, and affective tests.

Group A: Self-actualization (Socioemotional goals emphasis)

Far West Lab
U. Arizona
Bank Street
EDC

Group B: Behavior modification (traditional academic goals emphasis)

U. Oregon
U. Kansas
U. Pittsburgh

Group C: Cognitive growth (emphasis on concept development through experience and exploration)

Far West Lab
U. Georgia
High/Scope
ILM

The first set of hypotheses predicted differences between sponsors in Group A and those in Group B, such that A would rank higher than B on affective tests and B higher than A on academic skills tests. The second set contrasted sponsors in Group B with those in Group C, predicting that B would surpass C on academic skills tests and C be higher than B on problem-solving tests.

Results indicated that the children of Group B sponsors who emphasize behavior modification processes such as those assessed by the COI (stimulus-response-feedback variables) perform better on tests related to traditional academic skills than children of other sponsors.

The children of Group C sponsors who emphasize concept development through experience and exploration perform well on the Raven's and the Peabody, which can be interpreted as tests of problem solving and general intellectual development. COI variables which are tentatively related to the Raven's are adults providing individual attention to children and adults asking divergent questions. The affective tests were difficult to interpret, but there was a trend for the children in the behavior modification group to score higher on these noncognitive measures. Thus, the hypothesis regarding the superiority of the self-actualizing group over the behavior modification group on the affective tests was not upheld. We again caution the reader that the data examined were limited to one site per sponsor and the findings should not be generalized to other sites.

If sponsors are grouped according to variables observed on the COI, then this method of contrasting performance of sponsors on test outcomes is justified for this analysis. However, the Maccoby and Zellner classification of sponsors' models was not sufficiently broad for this analysis. In actuality, sponsors' models displayed greater diversity on some variables and greater similarities on other variables than were suggested by the Maccoby and Zellner classification.

E. Refinements of Observation Methodology

1. Child-Focused Variables

Introduced for the first time in the evaluation of the implementation of the sponsors' models were data based upon observations of individual children. In earlier uses of the COI, teachers and aides were the only foci of observation. Since the classroom adults are the primary vehicles through which the sponsors implement their educational models, a reasonable assumption was that adult behavior could best reflect the presence of the model. However, since some sponsors merely share their educational philosophy with teachers and aides rather than giving them specific training and instruction in administering a curriculum, and since some models are described in terms of the behavior expected of children (persistence in tasks, openness with teacher) or in terms of "classroom atmosphere," it appeared that observations of children would be another way to reflect the presence of the model. It also appeared that descriptions of the models based on children's behavior might include variables more appropriate to sponsors with unstructured, nonacademically oriented models. This kind of thinking led to the development of a set of new variables and to child-focused observations.

The child-focused data made an important contribution toward understanding child behavior within the classroom. Better information is recorded on such child behaviors as self-instruction, waiting, attending, and the interactions of children when children are the direct foci of observation. Model specific descriptions have been significantly improved by the addition of the new set of coded variables and we recommend its continued use in observation studies without reservation.

2. Analysis by Grade Level and Activity

As in the past two Follow Through Classroom Observation reports, data were combined for all observed classrooms for each sponsor. This year, in addition, a more detailed analysis was conducted--using the reading activity--to examine whether classroom processes changed by grade levels or by specific activities (see Appendix J for a detailed report). It was hypothesized that classroom processes might differ sufficiently among various activities or grades within a model that combining data might distort the findings, resulting in invalid generalizations regarding that sponsor's program.

Fortunately, no particular variable emerged as indicating grade level differences consistently across models or activity categories. There was some trend toward grade level shifts in the following area: a shift from more individual attention paid to children in the lower grades to more small groups or self-instruction on the part of children in the upper grades. As might be expected, the variables that discriminated activity categories were those that measured the frequency of academic interactions and task-related interactions. For most sponsors, for example, the variable that measured the frequency of academic interactions (FMO-116) was much higher during the reading and math activities than in the other activity categories. In the limited comparison of the detailed analysis (within grade and activity categories) with the overall analysis, the conclusion reached was that the results of the two analyses would be similar.

A few trends were found regarding classroom process shifts by grade level. We would recommend a continued exploration of grade differences. It is difficult to categorize obtained data on the basis of activities; for example, reading in one model may occur while preparing food from a recipe. Reading in this case could have been recorded as cooking and sewing, rather than as reading. For reasons such as these, we are reluctant to separate data by activities for sponsors' models--other than for the behavior modification group.

3. The Child as the Unit of Analysis

For the purpose of relating classroom processes to test outcomes, we used the child as the unit of analysis. This procedure was found to be inappropriate for the techniques used because the classroom was the unit of analysis for the process data. When enough observations of the individual child can be obtained, then it will be possible to use him as the unit of analysis.

F. Policy Implications

It may be useful for decision-makers to know which specific classroom processes are likely to promote valued child behavior and skills. This study has concentrated on observing the actual occurrences inside the classroom and assessing their effects on children. The findings of this report indicate that there is variation in outcomes and the variation is related to program emphasis. To this end, influential classroom process variables appear to have been identified. The observation variables that relate to outcomes are: individualized work settings, which promote problem solving skills as assessed by the Raven's Progressive Matrix; a stimulus-response-feedback type of interaction between adults and children during academic activities, which relates to higher scores on achievement tests; and (tentative findings suggest) a supportive environment (where divergent questions are asked and adults acknowledge children), which is related to child questioning, child cooperativeness, and task independence. No relationship was found between classroom processes and the affective factor. As has been said in nearly every evaluation of early education programs, affect or social-emotional development is not well measured by the available test instruments. For this reason, we advocate that present affective test measures not be employed, but rather that behavior as observed in the classroom be used in evaluating social and emotional development.

It must be stressed, however, as was concluded in the previous SRI observation report, that there is a danger in taking any single element out of context. We caution those who make program decisions that one classroom process should not be extracted from the whole complex of variables that make up a sponsor's model and implemented. For example, the relationship between feedback to a child for task-related activities and academic achievement may not obtain if feedback is not used within the context of small groups, individual attention, and programmed materials as specified by a sponsor. We do not know exactly what mix of the various components relates to the desired outcomes. However, hypotheses can nevertheless be generated from the findings of this report.

The practice of comparing overall Follow Through results to Non-Follow Through results may answer a gross question such as whether the money spent under Follow Through guidelines has resulted in specific effects, i.e., classroom aides or improved material and equipment. However, such simplistic questions would completely mask the strong specific effects of the planned variation program. The purpose of the planned variation program is defeated if this most important fact is ignored: the nature of Follow Through is a set of variations and each of the variations has a different set of processes and results.

In his review of many studies, including the Coleman report, Jencks et al., 1972) drew his conclusions that efforts in compensatory education would be generally ineffective on the basis of later income earned by the students who had graduated from the programs. He concluded that educational programs and benefits derived from generous school budgets providing such facilities as libraries and laboratories were not the critical factors in adult "success" as measured by levels of earning.

The success of the innovative Follow Through program represents a departure from the conclusions drawn by the Coleman report and its subsequent analyses, such as those by Jencks et al., (1972), or those of Mosteller and Moynihan. Conclusions in those reports were drawn from correlation research on teaching as it naturally occurred in the 1960s. In contrast, the programs in Planned Variation Follow Through depart from traditional instruction and represent a series of new instructional programs. Not all programs are equally successful in enhancing student growth toward particular objectives, but some of these programs represent powerful means for enhancing the skills and competences of children from low-income families.

The issue of whether the children will be able to continue their growth as they proceed through the more traditional education that awaits them, and whether this growth will finally improve their ability to earn a living, is dependent upon other factors besides schooling. Clearly, these children definitely are experiencing systematic educational programs that differ from those of their comparison peers, and the longitudinal effect has yet to be evaluated. It would be highly useful to policy makers if these sample children could be followed or evaluated at several points later in their school and life experiences, as Skeels and Terman, among others, have done with startling results. Only such a commitment to a longitudinal evaluation of the results of the Follow Through effort can provide the information that educators, policy makers, and the public seek.

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Appendix A

CLASSROOM OBSERVATION VARIABLE SPECIFICATION

Appendix A

CLASSROOM OBSERVATION VARIABLE SPECIFICATION

There are three categories of classroom observation variables: summary variables, Classroom Check List (CCL) variables, and interaction variables from the Five-Minute Observation (FMO). The summary variables are taken from the Classroom Summary Information and Physical Environment Information sections of the red cover sheet. The CCL and interaction variables come from the Classroom Observation Procedure (COP) section of the instrument.

The FMO (interaction) variables are divided into child behavior variables (FMO 1 through 60) and adult behavior variables (FMO 61 through 120). The individual child variables on the child-focused observations represent the behavior of the randomly preselected focus children, whereas those on the adult-focused observations represent the behavior of any child interacting with the focus adult.

The variables as described below are numbered consecutively within each of the three main variable classifications. This numbering is preserved for identifying variables in sections of the report.

A.1. Summary Variables (OSF)

A.1.1. Classroom Summary Information

1.	Sponsor code	Classroom identification data
2.	Site code	
3.	Center code	
4.	Teacher code	
5.	--	Not used in analysis
6.	Reliability/regular observation	Value = 0 if regular observation. Value = -1 if regular observation. with some reliability observations. Value = 1 if observations by a reliability observer. For Child Focus observations, this value will always be 0.

7.	Grade		
8.	Observer code		
9.	Date	Ordinal day of year, e.g., February 2 = day 33 April 4 = day 95	
10.	Number of children enrolled	When data are combined over two or more days, the average of each of these variables is used. Variables that were not marked are not included in the averages.	
11.	Number of children present		
12.	Number of teachers		
13.	Number of aides		
14.	Number of volunteers present		
15.	Child/adult ratio	$\frac{\text{Number of children present}}{\text{Number of adults present (including aides and volunteers)}}$.	When data are combined over two or more days, average of this variable is used.
16.	Total class duration	1 = 2-1/2 hr. 2 = 3 hr. 3 = 3-1/2 hr. 4 = 4 hr. 5 = 4-1/2 hr. 6 = 5 hr. 7 = 5-1/2 hr. 8 = 6 hr.	When data are combined over two or more days, the highest value of all days for a class is used.

A.1.2. Physical Environment Information

17.	Movable tables and chairs for seating	0 = no 1 = yes	When data are combined over 2 or more days, the rule is: if yes on any day for a class, then yes.
18.	Stationary desks in rows	Code as for Item 17.	
19.	Assigned seating for at least part of the day	Code as for Item 17.	
20.	Children select their own seating locations	Code as for Item 17.	

21.	Teacher assigns children to groups	Code as for Item 17.	
22.	Children select their own work groups	Code as for Item 17.	
23.	Condition of playground equipment	0 = "playground equipment in old condition" alone 1 = "playground equipment in old condition" and "playground equipment in new condition" marked 2 = "playground equipment in new condition" alone -99 = neither marked When data combined over 2 or more days, the rule is: highest value of all days for a class.	
24.	Playground activity directed by adults	0 = "never" 1 = "sometimes" 2 = "always" Average overall days for a class.	When data are combined over 2 or more days, the average is used.
25.	Is the school building in good condition?	0 = "no" 1 = "yes"	When the data are averaged over 2 or more days, the value is the code with the highest frequency; ties become -99.
26.	Noise level	0 = low 1 = medium 2 = high	When data are combined over 2 or more days, average as in Item 24.
27.	Lighting	1 = "adequate" 0 = otherwise	When data are combined over 2 or more days, the code having the highest frequency is used; ties go to "1".
28.	Heating and ventilation	1 = "comfortable" 0 = otherwise	
29.	Children's own art on display	Code as for Item 17.	

30.	Photographs of the children on display	Code as for Item 17.
31.	Pictures of various ethnic groups on display	Code as for Item 17.
32.	Community events posted	Code as for Item 17.
33.	Other	Code as for Item 17.
34.	Single contained classroom within a building	Code as for Item 17.
35.	Open classrooms	Code as for Item 17.
36.	Adequate space per child	Code as for Item 17.
37.	Number of COPs	When data combined over 2 or more days, the value is the total of all days included.

A.2. Classroom Check List Variables (CCL)

The first 13 variables indicate whether the named activity has occurred.

The rule for each COP is:

Code 1 if the activity has occurred
0 otherwise

For CCL variables 1-57, when data are combined over two or more COPs, the average over COPs is used.

	Descriptive Label	Variable Specification
1.	Snack, lunch	
2.	Group time	
3.	Story, singing, dancing	
4.	Arithmetic, numbers, math	
5.	Reading, alphabet, language development	
6.	Social studies, geography	
7.	Science, natural world	

Descriptive Label	Variable Specification
8. Guessing games, table games, puzzles	
9. Arts, crafts	
10. Sewing, cooking, pounding, sawing	
11. Blocks, trucks	
12. Dolls, dress-up	
13. Active play	
14. Wide variety of activities	Sum of Variables: 1-13 Range: 0-13

Variables 15-26 indicate the frequency of occurrence of the named groupings.

15. Teacher with one child in any academic activity
16. Teacher with two children in in any academic activity
17. Teacher with small group in any academic activity
18. Teacher with large group in any academic activity
19. Aide with one child in any academic activity
20. Aide with two children in any academic activity
21. Aide with small group in any academic activity
22. Aide with large group in any academic activity
23. Volunteer with one child in any academic activity
24. Volunteer with two children in any academic activity
25. Volunteer with small group in any academic activity

Descriptive Label	Variable Specification
26. Volunteer with large group in any academic activity	
27. Academic activity	$\sum$Var. 4-7

The following six variables indicate amount of use of the indicated materials and equipment during the associated activities. Therefore, indicators are examined only when the associated activities occur. The variables are then divided by the frequency of indicated activities to obtain a relative frequency of use.

28. Use of textbooks, work books, and any symbolic objects in any academic activity	
29. Use of language experience charts in Activity 5	
30. Use of tapes, records, films, or TV in any academic activity	
31. Use of games in Activities 4 and 5	
32. Use of concrete objects in Activities 4 and 6	
33. Use of science equipment, plants, and animals	

Variable 34 is a weighted combination of the items listed. The result is the approximate number of children working independently, regardless of how they are grouped.

34. Children working independently in academic activities	In Activities 4-7, occurrences in the "independent" line are weighted thus: occurrences of 1 child multiplied by 1 2 children multiplied by 2 Small group multiplied by 5 Large group multiplied by 10

Variables 35-52 represent the frequency of occurrence of the named groupings.

Descriptive Label	Variable Specification
[*]35. Any adult (T,A,V) with one child in any activity (1-18)	Range: 0-6 for one-child groupings 0-6 for two-children groupings 0-9 for small-group groupings 0-3 for large-group groupings
[*]36. Any adult (T,A,V) with two children in any activity (1-18)	
[*]37. Any adult (T,A,V) with small groups in any activity (1-18)	
[*]38. Any adult (T,A,V) with large groups in any activity (1-18)	
39. Teacher with one child in any activity (1-18)	
40. Teacher with two children in any activity (1-18)	
41. Teacher with small group in any activity (1-18)	
42. Teacher with large group in any activity (1-18)	
43. Aide with one child in any activity (1-18)	
44. Aide with two children in any activity (1-18)	
45. Aide with small group in any activity (1-18)	
46. Aide with large group in any activity (1-18)	
47. Teacher without children	
48. Aide without children	

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[*] Programming error causes Variables 35-38 to be identical with Variables 39-42 respectively.

	Descriptive Label	Variable Specification
49.	One child engaged in any activity without adult (1-18)	
50.	Two children engaged in any activity without adult (1-18)	
51.	Small group without adult in any activity (1-18)	
52.	Large group without adult in any activity (1-18)	
53.	Number of adults in classroom	Range: blank, 0-10
	Variables 54-57 not used in analysis.	
58.	Activity	This is the activity code of the following FMO. The variable is only used as a blocking variable when combining COPs. (See Appendix J)
59.	Pupil code	This variable was used to gather into one place the FMO observations for a particular child.
	Variable 60 not used in analysis.	
61.	Number of frames	Total of all frames over COPs used.
	Variable 62 not used in analysis.	
63.	Reliability observation	Value is 1 if current COP was part of a reliability observation, 0 otherwise. Used to gather COPs for the reliability analysis.

A.3. Interaction Variables (FMO)

The interaction variables are made up of occurrences of specified frame codes in the FMO section of the COI. Each frame in the FMO section is sorted to one or more variables or to a null variable. Each variable contains a count of the frames that sort to it. A particular frame may count in more than one variable.

The variable specification list that follows lists the names of the variables, the code combinations that make up each variable, and the values in the tape words that realize the coding specification. Codes listed in a vertical column, e.g.,

C
D
S
L ,

indicate that occurrence of any one of those codes is acceptable for the variable. A dash (-) indicates that a code category is not relevant for that variable.

The variables are defined identically for both child-focused and adult-focused data. The reader should understand that, when a C occurs alone in either the Who or the To Whom category for a variable definition, it means the focus child in the child-focused data and any single child in the adult-focused data. The term "child" also implies children in the adult-focused data. It usually implies focus child in the child-focused data.

The tape words which head the right half of the following pages refer to the operational definitions of the more general definitions on the left-hand side.

Tape Word 1 lists the acceptable codes for Repeat (R) and Simultaneous (S). The values are:

-99 if neither marked
0 if R alone marked
1 if S alone
2 if both marked

Tape Words 2 and 3 list the acceptable codes for the Who and To Whom categories, respectively. The values are:

1 if Teacher
2 if Aide
3 if Volunteer
4 if Child
5 if Different child
6 if 2 children
7 if Small group
8 if Large group
9 if Everyone
10 if Machine

Tape Word 4 lists the acceptable What codes:

1 if Command or request
2 if Open-ended question
3 if Responds
4 if Instructs, explains
5 if General comment, greeting
6 if Praise
7 if Acknowledge
8 if Productive statement
9 if Corrective feedback
10 if No response
11 if Waiting
12 if Observing, listening

Tape Word 5 lists the acceptable Nonverbal (NV) and Movement (X) codes:

0 if neither marked
1 if NV alone
2 if X alone
3 if both marked

Tape Word 6 lists the acceptable How codes:

0 if Blank
1 if + (Happy or positive)
2 if - (Negative or sad)
3 if Academic
4 if Touch
5 if Guide to alternative
6 if Reason
7 if Cooperate
8 if Question
9 if Firm
10 if Punish
11 if Life experience
12 if Specific
13 if Imaginary
14 if Symbolic
15 if Object
21 if "+T"
22 if "+C"
23 if "+L"
24 if "+S"

25 if "+I"
26 if "+Sy"
27 if "-T"
28 if "-L"
29 if "-Sy"
30 if "AO"
31 if "TC"
32 if "GSy"
33 if "RSy"
34 if "QSy"
35 if "FT"
36 if "FSy"
37 if "PT"
38 if "SSy"
39 if "IO"
40 if "+Sy"
41 if "CSy"
99 if other multiple mark than in Codes 21-41

For adult-focus data, all Simultaneous frames (Tape Word 1 = 1) were deleted. Frames marked both Repeat and Simultaneous (Tape Word 1 = 2) were considered as only Repeated frames. When a Repeat frame was encountered (Tape Word 1 = 0 or 2), the immediately preceding legal (i.e., not Simultaneous) frame was copied into the repeated frame. When a Simultaneous frame was deleted, the frame count was reduced accordingly.

For child-focus data, the Repeat was handled in a special manner. Since a Simultaneous frame is intended to exist simultaneously with the immediately preceding nonsimultaneous frame, a Simultaneous frame followed by a Repeat frame resulted in the copying of both the Simultaneous and the immediately preceding nonsimultaneous frame. This was consistent with the training procedures for using the Repeat and Simultaneous frames. This sometimes resulted in more than 76 frames occurring in a FMO, and is considered legal.

The data at the COP level represent absolute frequency of occurrence. When data are summed over COPs, the value is computed as

$$\frac{\text{total frequency}}{\text{number of frames}} \; {}^{*}76.$$

This figure represents the rate or relative frequency per COP; the first term of the equation is multiplied by 76 to bring the figure up to the

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[*] Means multiply.

COP level. An alternative computation would be to divide the total frequency of a variable by the number of COPs. This method is equivalent to the one used if and only if there are an average of 76 frames per COP. However, sometimes the number of frames is considerably less than 76/COP (because focus left room, and other reasons), and the data would be biased if the alternative procedure were used.

FMO VARIABLES

Variable and Description				Operational Definition--Tape Word					
Who	To Whom	What	How	1	2	3	4	5	6
1. Child talking to adult									
C D 2 S L	T A V	1 6 2 7 3 8 4 9 5	Not NV	-	4-8	1-3	1-9	0,2	-
2. Child initiating interaction with adult									
C D 2 S L	T A V	1 6 2 7 4 8 5 9	-	-	4-8	1-3	1,2 4-9	-	-
3. Child initiating interaction with teacher									
C D 2 S L	T	1 6 2 7 4 8 5 9	-	-	4-8	1	1,2 4-9	-	-
4. Child initiating interaction with aide									
C D 2 S L	A	1 6 2 7 4 8 5 9	-	-	4-8	2	1,2 4-9	-	-
5. Child talking to other children									
C	D 2 S L	1 6 2 7 3 8 4 9 5	Not NV	-	4	5-8	1-9	0,2	-

	Variable and Description				Operational Definition--Tape Word					
	Who	To Whom	What	How	1	2	3	4	5	6
6.	Other children talking to child									
	D 2 S L	C	1 6 2 7 3 8 4 9 5	Not NV	-	5-8	4	1-9	0,2	-
7.	Child not interacting with anyone									
	C	C	- -	-	-	4	4	-	-	-
8.	Child initiating interaction with different child									
	C	D	1 6 2 7 4 8 5 9	-	-	4	5	1,2 4-9	-	-
9.	Different child initiating interaction with child									
	D	C	1 6 2 7 4 8 5 9	-	-	5	4	1,2 4-9	-	-
10.	Child initiating interaction with two children									
	C	2	1 6 2 7 4 8 5 9	-	-	4	6	1,2 4-9	-	-
11.	Two children initiating interaction with child									
	2	C	1 6 2 7 4 8 5 9	-	-	6	4	1,2 4-9	-	-
12.	Child initiating interaction with small group									
	C	S	1 6 2 7 4 8 5 9	-	-	4	7	1,2	-	-

	Variable and Description				Operational Definition--Tape Word					
	Who	To Whom	What	How	1	2	3	4	5	6
13.	Child initiating interaction with a machine									
	C	M	5	-	-	4	10	5	-	-
14.	Machine initiating interaction with a child									
	M	C	1 2 4 5	-	-	10	4	1,2 4,5	-	-
15.	Child giving request or command									
	C D	-	1	Not Q	-	4,5	-	1	-	0-7 9-33 35-41
16.	Child asking direct question									
	C D	-	1	Q QSy	1	4,5	-	1	-	8,34
17.	Child asking open-ended question									
	C D	-	2	-	-	4,5	-	2	-	-
18.	Child asking question									
	C	-	(1	Q,QSy)	-	4,5	-	1	-	8,34
			or				or			
	D		(2	-)	-	4,5	-	2	-	-
19.	Child responding									
	C I 2 S L	-	3	-	-	4-8	-	3	-	-

	Variable and Description				Operational Definition--Tape Word					
	Who	To Whom	What	How	1	2	3	4	5	6
20.	Child responding with academic theme									
	C D 2 S L	-	3	A	-	4-8	-	3	-	3,30
21.	Child responding to adult open-ended question									
			Var. 79 followed by:							
	C D 2 S L	T A V	3	-	-	4-8	1-3	3	-	-
22.	Child giving elaborated response to adult open-ended question									
				Var. 21 followed by:						
	C D 2 S L	T A V	4	-	-	4-8	1-3	4	-	-
23.	Child instructing self									
	C	C	4NV	-	-	4	4	4	1	-
					or					
	D	D				5	5	4	1	-
					or					
	2	2				6	6	4	1	-
24.	Child instructing self in academic activity									
	C	C	4NV	A	-	4	4	4	1	3
					or					
	D	D				5	5	4	1	3
					or					
	2	2				6	6	4	1	3

	Variable and Description				Operational Definition--Tape Word					
	Who	To Whom	What	How	1	2	3	4	5	6
25.	Child instructing self by using objects									
	C	C	4NV	0	-	4	4	4	1	15,39
					or					
	D	D		I0		5	5	4	1	15,39
					or					
	2	2				6	6	4	1	15,39
26.	Child instructing self in academic activity by using objects									
	C	C	4NV	AO	-	4	4	4	1	30
					or					
	D	D				5	5	4	1	30
					or					
	2	2				6	6	4	1	30
27.	Child instructing other children									
	C	D 2 S L	4	-	-	4	5-8	4	-	-
28.	Other children instructing child									
	D 2 S L	C	4	-	-	5-8	4	4	-	-
29.	Child task persistent in self-instruction									
	Variable 23 six times in succession.									
30.	Child inattentive to teacher or machine instructing									
	T A V M	C D 2 S L	4	-	-99 0,2	1-3,10	4-8	4	-	-
			followed by:							
	C D 2 S L	T A V M	1 2 4 5 10	-	1	4-8	1-3,10	1,2 4,5 10	-	-

Variable and Description				Operational Definition--Tape Word					
Who	To Whom	What	How	1	2	3	4	5	6
31. Child attentive to adult or machine									
T A V M	C D 2 S L	4	-	-99,0,2	1-3,10	4-8	4	-	-
		followed by:							
C D 2 S L	T A V M	3 11 12	-	1	4-8	1-3,10	3,11 12	-	-
32. Child commenting to adult									
C D 2 S L	T A V	5	Not NV	-	4-8	1-3	5	0,2	-
33. Child commenting to other children									
C	D 2 S L	5	Not NV	-	4	5-8	5	0,2	-
34. Other children commenting to child									
D 2 S L	C	5	Not NV	-	5-8	4	5	0,2	-
35. Child participating in general action									
C D 2 S L	C D 2 E S M L	5,X NVX	-	-	4-8	4-10	5	2,3	-

	Variable and Description				Operational Definition--Tape Word					
	Who	To Whom	What	How	1	2	3	4	5	6
36. Child giving praise										
	C D 2 S L	-	6	-	-	4-8	-	6	-	-
37. Child giving acknowledgment										
	C D 2 S L	-	7	-	-	4-8	-	7	-	-
38. Child making productive statement										
	C D 2 S L	-	8	-	-	4-8	-	8	-	-
39. Other children making productive statement to child										
	D 2 S L	C	8	-	-	5-8	4	8	-	-
40. Child giving corrective feedback										
	C D 2 S L	T A V	C D 2 9 S L	-	-	4-8	1-8	9	-	-
41. Child not responding										
	C D 2 S L	-	10	-	-	4-8	-	10	-	-

	Variable and Description				Operational Definition--Tape Word					
	Who	To Whom	What	How	1	2	3	4	5	6
42. Child waiting	C D 2 S L	-	11	-	-	4-8	-	11	-	-
43. Child attentive	C D 2 S L	-	12	-	-	4-8	-	12	-	-
44. Child attentive to other children	C D 2 S L	D 2 S L	12	-	-	4-8	5-8	12	-	-
45. Child attentive to adult	C D 2 S L	T A V	12	-	-	4-8	1-3	12	-	-
46. Child attentive to a machine	C D 2 S L	M	12	-	-	4-8	10	12	-	-

	Variable and Description				Operational Definition--Tape Word					
	Who	To Whom	What	How	1	2	3	4	5	6
47.	Child nonverbal[*]									
	C									
	D		10		-	4-8	-	10-12	-	-
							or			
	2		11	NV,NVX						
	S	-	12		-	4-8	-	1-9	2-3[*]	-
	L		NV							
48.	All child motion[†]									
	C									
	D									
	2	-	X	-	-	4-8	-	-	2-3	-
	S									
	L									
49.	Child happy									
				+						
				+T +Sy						
				+C +TSy						
	C	-	-	+L	-	4	-	-	-	1,21-26,
				+S						40
				+I						
50.	Child showing positive behavior									
	C			+ +Sy						
	D			+T +TSy						
	2	-	-	+C	-	4-8	-	-	-	1,21-26,
	S			+L						40
	L			+S						
				+I						
51.	Other children showing positive behavior to child									
	D			+ +Sy						
	2			+T +TSy						
	S	C	-	+C	-	5-8	4	-	-	1,21-25,
	L			+L						40
				+S						
				+I						

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[*] Incorrect specification (X,NVX); should be 1,3 (NV,NVX).

[†] Programming error causes CD5 (no X) to be included in Variable 48.

	Variable and Description				Operational Definition--Tape Word					
	Who	To Whom	What	How	1	2	3	4	5	6
52. Child showing negative behavior	C	-	-	- -L -T -Sy P PT	-	4	-	-	-	2,10, 27-29,37
53. Any child or children showing negative behavior	C D 2 S L	-	-	- -Sy P PT -T -L	-	4-8	-	-	-	2,10, 27-29,37
54. Other children negative to child	D 2 S L	C	-	- -L -T -SY P PT	-	5-8	4	-	-	2,10, 27-29,37
55. Child giving positive touch	C D 2 S L	-	-	+ +TSy	-	4-8	-	-	-	21,40
56. Child giving negative touch	C D 2 S L	-	-	-T PT FT	-	4-8	-	-	-	27,35,37
57. Child engaged in task-related activity	C D 2	-	-	A CSy S GSy L RSy Sy QSy TSy +TSy AØ	-	4-6	-	-	-	3,11,12,14, 26,30,32-34, 36,38,40,41

		Variable and Description				Operational Definition--Tape Word					
		Who	To Whom	What	How	1	2	3	4	5	6
58.	Child cooperating with other children	C 2	D 2	-	C TC +C CSy	-	4,6	5-6	-	-	7,22,31,41
59.	Child sharing life experiences	C D	-	-	L +L -L	-	4,5	-	-	-	11,23,24, 28
60.	Child showing imagination	C D 2 S L	-	-	I I[illegible] +I	-	4-8	-	-	-	13,25,39
61.	Adult interacting with one child	T A V	C D	-	-	-	1-3	4-5	-	-	-
62.	Adult interacting with two children	T A V	2	-	-	-	1-3	6	-	-	-
63.	Adult interacting with small group	T A V	S	-	-	-	1-3	7	-	-	-
64.	Adult interacting with large group	T A V	L	-	-	-	1-3	8	-	-	-

	Variable and Description				Operational Definition--Tape Word					
	Who	To Whom	What	How	1	2	3	4	5	6
65. Teacher interacting with one child	T	C D	-	-	-	1	4-5	-	-	-
66. Aide interacting with one child	A	C D	-	-	-	2	4-5	-	-	-
67. Aide interacting with two children	A	2	-	-	-	2	6	-	-	-
68. Teacher interacting with two children	T	2	-	-	-	1	6	-	-	-
69. Teacher interacting with small group	T	S	-	-	-	1	7	-	-	-
70. Aide interacting with small group	A	S	-	-	-	2	7	-	-	-
71. Teacher interacting with large group	T	L	-	-	-	1	8	-	-	-
72. Aide interacting with large group	A	L	-	-	-	2	8	-	-	-
73. Adult talking to child[*]	T A V	C	1 6 2 7 3 8 4 9 5	Not NV	-	1-3	4	1-9	0,2	-

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[*] Programming error causes TC10 to be included in Variable 73.

	Variable and Description				Operational Definitions--Tape Word					
	Who	To Whom	What	How	1	2	3	4	5	6
74.	Adult initiating interaction with child									
	T A V	C	1 6 2 7 4 8 5 9		-	1-3	4	1,2 4-9	-	-
75.	Teacher initiating interaction with child									
	T	C	1 6 2 7 4 8 5 9	-	-	1	4	1,2 4-9	-	-
76.	Aide initiating interaction with child									
	A	C	1 6 2 7 4 8 5 9	-	-	2	4	1,2 4-9	-	-
77.	Adult giving request or command to children									
	T A V	C D 2 S L	1	Not Q	-	1-3	4-8	1	-	0-7,9-33, 35-41
78.	Adult asking direct question of children									
	T A V	C D 2 S L	1	Q QSy	-	1-3	4-8	1	-	8,34
79.	Adult asking open-ended question of children									
	T A V	C D 2 S L	2	-	-	1-3	4-8	2	-	-

	Variable and Description				Operational Definitions--Tape Word					
	Who	To Whom	What	How	1	2	3	4	5	6
80.	Adult responding to children									
	T A V	C D 2 S L	3	-	-	1-3	4-8	3	-	-
81.	Adult instructing children									
	T A V	C D 2 S L	4	-	-	1-3	4-8	4	-	-
82.	Adult instructing children in academic activity									
	T A V	C D 2 S L	4	A	-	1-3	4-8	4	-	3
83.	Adult instructing children by using objects									
	T A V	C D 2 S L	4	0	-	1-3	4-8	4	-	15
84.	Adult instructing children in academic activity by using objects									
	T A V	C D 2 S L	4	AO	-	1-3	4-8	4	-	30
85.	Adult commenting to children									
	T A V	C D 2 S L	5	Not NV	-	1-3	4-8	5	0,2	-

	Variable and Description				Operational Definitions--Tape Word					
	Who	To Whom	What	How	1	2	3	4	5	6
86.	Adult in motion									
	T A V	-	X	-	-	1-3	-	-	2,3	-
87.	Adult not interacting with children									
	T A V	-	5 11	NV	-	1-3	-	5 11	1,3	-
88.	Adult praising children									
	T A V	C D 2 S L	6	-	-	1-3	4-8	6	-	-
89.	Adult praising children in task-related activity									
	T A V	C D 2 S L	6	Sy +TSy +Sy CSy SSy	-	1-3	4-8	6	-	14,26, 38,40, 41
90.	Adult praising children for behavior									
	T A V	-	6	(Not Sy)	-	1-3	-	6	-	0-13,15-25, 27,29
91.	Adult giving specific praise to children									
	T A V	C D 2 S L	6	S +S SSY	-	1-3	4-8	6	-	12,24,38

	Variable and Description				Operational Definitions--Tape Word					
	Who	To Whom	What	How	1	2	3	4	5	6
92.	Adult giving acknowledgment to children									
	T A V	C D 2 S L	7	-	-	1-3	4-8	7	-	-
93.	Adult giving task-related acknowledgment to children									
	T A V	C D 2 S L	7	Sy +TSy +Sy CSy SSy	-	1-3	4-8	7	-	14,26,38, 40,41
94.	Adult giving non-task-related acknowledgment to children									
	T A V	-	7	(Not Sy)	-	1-3	-	7		0-13,15- 25,27-37, 39
95.	Adult giving nonverbal acknowledgment to children									
	T A V	C D 2 S L	7NV	-	-	1-3	4-8	7	1,3	-
96.	Adult making productive statement to children									
	T A V	C D 2 S L	8	-	-	1-3	4-8	8	0,2	-
97.	Adult giving children corrective feedback									
	T A V	C D 2 S L	9	-	-	1-3	4-8	9	-	-

Variable and Description				Operational Definitions--Tape Word					
Who	To Whom	What	How	1	2	3	4	5	6
98. Adult giving children positive corrective feedback for behavior									
T A V	C D 2 S L	9	+ G R Q +T	-	1-3	4-8	9	-	1,5,6,8, 21
99. Adult giving children positive corrective feedback in task-related activity									
T A V	C D 2 S L	9	+Sy +TSy GSy RSy QSy Sy	-	1-3	4-8	9	-	14,26,32- 34,40
100. Adult giving children corrective feedback in task-related activity									
T A V	C D 2 S L	9	-Sy RSy Sy QSy +Sy +TSy GSy CSy FSy	-	1-3	4	9	-	14,26,29, 32-34,36, 40,41
101. Adult giving children negative corrective feedback for behavior									
T A V	C D 2 S L	9	-T P PT	-	1-3	4-8	9	-	2,10,27
102. Adult giving children firm corrective feedback for behavior									
T A V	C D 2 S L	9	F FT	-	1-3	4-8	9	-	9,35
103. Adult giving children negative corrective feedback in task-related activity									
T A V	C D 2 S L	9	-Sy	-	1-3	4-8	9	-	29

Variable and Description				Operational Definitions--Tape Word					
Who	To Whom	What	How	1	2	3	4	5	6
104. Adult giving any feedback									
T A V	C D 2 S L	6 7 9	-	-	1-3	4-8	6,7,9	-	-
105. Adult giving children feedback for academic response to adult academic direct question									
			Var. 78 followed by:						
C D 2 S L	T A V	3	A A0	-99,0,2	4-8	1-3	3	-	3,30
			Followed by: A-27						
T A V	C D 2 S L	6 7 9	Sy GSy +Sy RSy -Sy QSy FSy +TSy SSy	-99,0,2	1-3	4-8	6,7,9	-	14,26,29, 32-34,36, 38-40
106. Adult giving children feedback for academic response to adult open-ended question									
			Var. 79 followed by second and third parts of Var. 105.						
107. Adult not responding to children									
T A V	C D 2 S L	10	-	-	1-3	4-8	10	-	-
108. Adult attentive to children									
T A V	C D 2 S L	12	-	-	1-3	4-8	12	-	-

	Variable and Description				Operational Definitions--Tape Word					
	Who	To Whom	What	How	1	2	3	4	5	6
109. All positive behavior	-	-	-	+ +I +T +Sy +C +TSy +L +S	-	-	-	-	-	1,21-26, 40
110. Adult showing positive behavior	T A V	-	-	+ +I +T +Sy +C +TSy +L +S	-	1-3	-	-	-	1,21-26, 40
111. All negative behavior	-	-	-	- -Sy P PT -T -L	-	-	-	-	-	2,10,27- 29,37
112. Adult showing negative behavior	T A V	-	-	- -Sy P PT -T -L	-	1-3	-	-	-	2,10,27- 29,37
113. Adult giving child positive touch	T A V	C D 2	-	+T +TSy	-	1-3	4-6	-	-	21,40
114. Adult giving child negative touch	T A V	C D 2	-	-T	-	1-3	4-6	-	-	27
115. Adult giving child punishing touch	T A V	C D 2	-	PT	-	1-3	4-6	-	-	37

	Variable and Description				Operational Definitions--Tape Word					
	Who	To Whom	What	How	1	2	3	4	5	6
116.	Academic events									
	-	-	-	A A0	-	-	-	-	-	3,30
117.	Adult interacting with child or children in task-related activity*									
	T A V	C D 2	-	A GSy Sy RSy +Sy QSy AO +TSy CSy	-	1-3	4-6	-	-	3,14,26 30,32-34, 36,38,40
118.	Adult instructing children in nonacademic activity without using objects									
	T A V	C D 2 S L	4	Not A,O, or AO	-	1-3	4-8	4	-	0-2,4-14, 21-29,31- 41
119.	Everyone interacting									
	E	E	-	-	-	9	9	-	-	-
120.	Adult interacting with adult									
	T A V	T A V	-	-	-	1-3	1-3	-	-	-

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[*] Programming error causes some non-task related interactions to be included in Variable 117.

Appendix B

FOLLOW THROUGH SPONSORS' RATINGS OF CLASSROOM OBSERVATION VARIABLES

Appendix B

FOLLOW THROUGH SPONSORS' RATINGS OF CLASSROOM OBSERVATION VARIABLES

Variable Number	Far West Lab	U. of Arizona	Bank Street	U. of Georgia	U. of Oregon	U. of Kansas	High Scope	U. of Florida	EDC	U. of Pittsburgh	ILM	Southwest Lab* BlK	EnK	LDR 1, 2
CCL Variables														
1. Snack, lunch	+	+	+	+	0	+	+	0	0	0	+	0	0	0
2. Group time	+	+	+	+	+	+	+	0	0	0	+	0	0	0
3. Story, singing, dancing	+	+	+	+	0	+	+	0	+	0	+	0	0	0
4. Arithmetic, numbers, math	+	+	+	+	+	+	+	0	+	+	+	0	0	0
5. Reading, alphabet, language development	+	+	+	+	+	+	+	0	+	+	+	+	0	0
6. Social studies, geography	+	+	+	+	0	+	+	0	+	0	+	0	0	0
7. Science, natural world	+	+	+	+	0	+	+	0	+	0	+	0	0	0
8. Guessing games, table games, puzzles	+	+	+	+	0	+	+	0	+	+	+	0	0	0
9. Arts, crafts	+	+	+	+	0	+	+	0	+	+	+	0	0	0
10. Sewing, cooking, pounding, sawing	+	+	+	+	0	+	+	0	+	0	0	0	0	0
11. Blocks, trucks	+	+	+	+	0	+	+	0	+	0	0	0	0	0
12. Dolls, dress-up	+	+	+	+	0	+	+	0	+	0	0	0	0	0
13. Active play	+	+	+	+	0	+	+	0	+	0	+	0	0	0
14. Wide variety of activities	+	+	+	+	0	+	+	0	+	+	+	+	0	0
15. Teacher with one child in any academic activity	+	+	+	-	0	+	+	+	+	+	+	0	0	0
16. Teacher with two children in any academic activity	+	+	+	-	0	+	+	+	+	+	+	0	0	0
17. Teacher with small group in any academic activity	0	+	+	+	+	+	+	+	+	+	+	+	+	+
18. Teacher with large group in any academic activity	0	+	0	-	+	-	-	-	-	0	-	0	0	+
19. Aide with one child in any academic activity	+	+	+	-	0	+	+	+	+	+	+	0	0	0
20. Aide with two children in academic activity	+	+	+	+	0	+	+	+	+	+	+	0	0	0
21. Aide with small group in any academic activity	0	+	+	+	+	+	+	+	+	+	+	+	+	+
22. Aide with large group in any academic activity	0	+	0	-	+	-	-	-	-	-	-	0	0	0
23. Volunteer with one child in any academic activity	+	+	0	+	0	+	+	+	+	0	+	0	0	0
24. Volunteer with two children in any academic activity	+	+	0	+	0	+	+	+	+	0	+	0	0	0
25. Volunteer with small group in any academic activity	0	+	0	-	0	+	+	+	+	0	+	0	0	0

Legend: + = Important to model.

0 = Neutral to model.

- = Should not occur in model.

*BlK = Bilingual Kindergarten.
EnK = English Kindergarten.
LDR 1, 2 = ...Language Development and Reading, Grades 1 and 2 Program.

Appendix B (Continued)

Variable Number	Far West Lab	U. of Arizona	Bank Street	U. of Georgia	U. of Oregon	U. of Kansas	High Scope	U. of Florida	EDC	U. of Pittsburgh	ILM	Southwest Lab		
												BIK	EnK	IDR 1, 2
26. Volunteer with large group in any academic activity	0	+	0	-	0	0	-	-	-	0	-	0	0	0
28. Use of textbooks, work books, and any symbolic objects in any academic activity	0	0	0	0	+	+	-	0	-	0	+	0	0	+
29. Use of language experience charts in Activity 5	+	+	+	+	0	0	+	0	+	0	+	0	0	+
30. Use of tapes, records, films or TV in any academic activity	+	+	0	+	0	0	0	0	0	0	0	0	0	0
31. Use of games in Activities 4 and 5	+	+	+	+	+	0	+	0	+	+	+	0	0	0
32. Use of concrete objects in Activities 4 and 6	+	+	+	+	+	+	+	0	+	+	+	0	+	0
33. Use of science equipment, plants, and animals	+	+	+	+	0	+	+	0	0	0	+	0	0	0
34. Children working independently in academic activities	+	+	+	+	0	+	+	0	+	+	+	0	+	0
35. Any adult with one child in any activity	+	0	+	0	0	0	+	+	+	+	+	0	0	0
36. Any adult with two children in any activity	+	0	+	0	0	0	+	+	+	+	+	0	0	0
37. Any adult with small group in any activity	0	0	+	+	+	+	+	+	+	+	+	+	+	0
38. Any adult with large group in any activity	0	+	0	-	0	-	-	-	-	0	-	0	0	+
39. Teacher with one child in any activity	+	+	+	-	0	+	+	+	+	+	+	0	0	0
40. Teacher with two children in any activity	+	+	+	+	0	+	+	+	+	+	+	0	0	0
41. Teacher with small group in any activity	+	+	+	+	+	+	+	+	+	+	+	+	+	+
42. Teacher with large group in any activity	0	+	0	-	0	-	-	+	-	0	0	0	0	+
43. Aide with one child in any activity	+	+	+	0	0	+	+	+	+	+	0	0	0	0
44. Aide with two children in any activity	+	+	+	+	0	+	+	+	+	+	0	0	0	0
45. Aide with small group in any activity	+	+	+	+	+	+	+	+	+	+	0	+	+	+
46. Aide with large group in any activity	0	+	0	-	0	-	-	-	-	0	-	0	0	+
47. Teacher without children	-	0	0	+	-	-	-	0	0	-	-	-	0	0
48. Aide without children	-	0	0	-	-	-	-	0	0	+	-	0	0	0
49. One child engaged in any activity without adult	+	+	+	+	-	+	-	+	+	+	0	0	0	0
50. Two children engaged in any activity without adult	+	+	+	+	-	+	-	+	+	+	+	0	0	0

Appendix B (Continued)

Variable Number	Far West Lab	U. of Arizona	Bank Street	U. of Georgia	U. of Oregon	U. of Kansas	High Scope	U. of Florida	EDC	U. of Pittsburgh	IIM	Southwest Lab		
												BIK	EnK	LRD 1, 2
51. Small group without adult in any activity	+	+	+	+	-	+	-	+	+	0	+	+	0	0
52. Large group without adult in any activity	0	0	0	-		-	-	0	+	0	-	-	0	0
Child Focus														
FMO Variables														
1^c Child talking to adult	+	+	+	+	+	+	+	0	0	+	+	0	+	0
3^c Child initiating interaction with teacher	+	+	+	+	0	0	+	0	0	+	+	0	+	0
4^c Child initiating interaction with aide	+	+	+	+	0	0	+	0	0	+	+	0	+	0
5^c Child talking to other children	+	+	+	+	0	0	+	0	+	+	+	0	0	0
7^c Child not interacting with anyone	+	+	+	+	0	0	+	0	+	+	0	0	0	0
8^c Child initiating interaction with different child	+	+	+	+	0	0	0	0	+	+	+	0	+	0
9^c Different child initiating interaction with child	+	+	+	+	0	0	0	0	+	0	+	0	0	0
10^c Child initiating interaction with two children	+	+	+	+	0	0	+	0	+	0	+	0	0	0
11^c Two children initiating interaction with child	+	+	+	+	0	0	+	0	+	0	+	0	0	0
12^c Child initiating interaction with small group	+	+	+	+	0	0	+	0	+	0	+	0	0	0
13^c Child initiating interaction with a machine	+	+	0	0	-	-	+	0	0	+	0	0	0	0
14^c Machine initiating interaction with a child	-	+	0	0	-	-	-	0	0	0	0	0	0	0
15^c Child giving request or command	+	+	+	+	0	+	+	0	0	+	+	0	0	0
16^c Child asking direct question	+	+	+	+	0	+	+	0	0	+	+	0	0	0
17^c Child asking open-ended question	+	+	+	+	0	+	+	0	+	+	+	0	0	0
18^c Child asking question	+	+	+	+	0	+	+	0	+	0	+	0	0	0
19^c Child responding	+	+	+	+	0	+	+	0	0	0	+	0	0	0
20^c Child responding with academic theme	+	+	+	+	+	+	+	0	0	+	+	0	0	0
23^c Child instructing self	+	+	+	+	0	+	+	0	+	+	+	0	+	0
24^c Child instructing self in academic activity	0	0	0	0	0	0	+	0	+	0	0	0	+	0
25^c Child instructing self by using objects	+	+	+	+	0	+	+	0	+	+	0	0	+	0
27^c Child instructing other children	0	+	+	+	0	+	+	0	+	0	+	0	+	0
28^c Other children instructing child	0	+	+	+	0	+	+	0	+	0	+	0	+	0
29^c Child task-persistent in self-instruction	+	+	+	+	+	+	+	0	+	+	+	0	+	0
30^c Child inattentive to teacher or machine instructing	-	0	0	+	-	+	+	0	0	-	+	0	0	0
32^c Child commenting to adult	+	+	+	+	0	+	+	0	+	0	+	0	0	0
33^c Child commenting to other children	+	+	+	+	0	+	+	0	+	0	+	0	0	0
34^c Other children commenting to child	+	+	+	+	0	+	+	0	+	0	+	0	0	0
35^c Child participating in general action	+	+	0	+	0	+	+	0	0	0	+	0	0	0

Appendix B (Continued)

	Variable Number	Far West Lab	U. of Arizona	Bank Street	U. of Georgia	U. of Oregon	U. of Kansas	High Scope	U. of Florida	EDC	U. of Pittsburgh	ILM	Southwest Lab		
													BIK	EnK	LDR 1, 2
36^c	Child giving praise	0	+	+	+	0	+	+	0	+	0	+	0	0	0
37^c	Child giving **acknowledgment**	+	+	+	+	0	+	+	0	+	0	+	0	0	0
38^c	Child making productive statement	+	+	+	+	0	+	+	0	+	0	+	0	0	0
39^c	Other children making productive statement to child	0	+	+	+	0	+	+	0	+	0	+	0	0	0
40^c	Child giving corrective feedback	0	+	+	+	0	+	+	0	-	0	+	0	0	0
41^c	Child not responding	0	0	0	+	+	+	+	0	-	0	0	0	0	0
42^c	Child waiting	-	0	0	+	+	+	+	0	-	+	0	0	0	0
43^c	Child attentive	+	+	+	+	+	+	+	0	0	0	+	0	0	0
44^c	Child attentive to other children	0	+	+	+	0	+	+	0	0	0	+	0	0	0
45^c	Child attentive to adult	0	+	+	+	0	+	-	0	0	0	+	0	0	0
46^c	Child attentive to a machine	+	+	0	0	-	-	-	0	0	0	0	0	0	0
47^c	Child nonverbal	+	0	+	+	0	+	+	0	-	0	0	0	0	0
48^c	All child motion	+	+	+	+	0	+	+	0	-	0	+	0	0	0
49^c	Child happy	+	0	0	+	+	+	+	0	+	0	+	0	+	0
52^c	Child showing negative behavior	+	0	0	+	-	-	+	0	+	0	0	0	0	0
54^c	Other children negative to child	0	0	0	+	-	-	+	0	0	0	0	0	0	0
57^c	Child engaged in task-related activity	+	0	0	+	+	+	+	0	0	+	+	0	0	+
58^c	Child cooperating with other children	+	+	+	+	0	+	+	0	+	+	+	-	0	0
59^c	Child sharing life experiences	+	+	+	+	0	+	+	0	+	0	+	0	0	0
60^c	Child showing imagination	0	+	+	+	0	+	+	0	+	+	+	0	0	0
74^c	Adult initiating interaction with child	0	+	+	+	+	+	+	0	0	+	+	0	+	0
76^c	Aide initiating interaction with child	0	+	+	+	+	+	+	0	0	+	+	0	+	0
77^c	Adult giving request or command to children	0	+	+	+	+	+	+	0	0	+	+	0	0	0
78^c	Adult asking direct question of children	0	+	+	+	+	+	+	0	0	+	+	0	+	0
79^c	Adult asking open-ended question of children	+	+	+	+	+	+	+	0	+	+	+	0	+	0
80^c	Adult responding to children	+	+	+	+	+	+	+	0	+	+	+	0	+	0
88^c	Adult praising children	0	+	+	+	+	+	+	0	+	+	+	+	+	0
89^c	Adult praising children in task-related activity	0	+	+	+	+	+	+	0	0	+	+	+	0	0
91^c	Adult giving specific praise to children	+	+	+	+	+	+	+	0	+	+	+	0	0	0
92^c	Adult giving **acknowledgment to children**	+	+	+	+	+	+	+	0	+	+	+	0	0	0
93^c	Adult giving task-related **acknowledgment to children**	+	+	+	+	+	+	+	0	+	+	+	0	0	0
97^c	Adult giving children corrective feedback	+	+	0	+	+	+	+	0	0	+	+	+	0	+
98^c	Adult giving children positive corrective feedback for behavior	+	+	0	+	+	+	+	0	+	+	+	+	0	+

Appendix B (Continued)

Variable Number		Far West Lab	U. of Arizona	Bank Street	U. of Georgia	U. of Oregon	U. of Kansas	High Scope	U. of Florida	EDC	U. of Pittsburgh	ILM	Southwest Lab		
													BIK	EnK	LRD 1, 2
99^c	Adult giving children positive corrective feedback in task-related activity	+	+	+	+	+	+	+	0	0	+	+	0	0	+
101^c	Adult giving children negative corrective feedback for behavior	-	-	-	+	+	-	-	0	0	-	-	-	0	0
107^c	Adult not responding to children	0	0	0	+	0	+	-	0	-	-	-	0	0	0
110^c	Adult showing positive behavior	+	0	0	+	+	+	+	0	+	+	+	0	0	0
112^c	Adult showing negative behavior	-	0	0	+	-	-	-	0	-	-	0	0	0	0
113^c	Adult giving child positive touch	0	+	0	+	+	+	+	0	+	+	0	0	0	0
114^c	Adult giving child negative touch	-	-	-	0	0	-	-	0	-	-	-	0	0	0
115^c	Adult giving child punishing touch	-	-	-	-	-	-	-	0	-	-	-	-	0	0
117^c	Adult interacting with child or children in task-related activity	+	0	0	+	+	+	+	0	0	+	+	0	0	0
	Adult Focus														
	FMO Variables														
21^a	Child responding to adult open-ended question	+	+	+	+	+	+	+	0	+	+	+	+	0	+
22^a	Child giving elaborated response to adult open-ended question	+	+	+	+	+	+	+	0	+	0	+	0	0	0
50^a	Child showing positive behavior	+	+	+	+	+	+	+	0	+	0	+	0	0	0
53^a	Children showing negative behavior	-	-	-	+	-	-	-	0	-	-	0	0	0	0
55^a	Child giving positive touch	0	+	+	+	0	+	+	0	+	0	0	0	0	0
56^a	Child giving negative touch	-	-	+	+	0	+	-	0	-	-	-	0	0	0
61^a	Adult interacting with one child	+	+	+	+	+	+	+	0	+	+	+	0	+	0
62^a	Adult interacting with two children	+	+	+	+	0	+	+	0	+	+	+	0	0	0
63^a	Adult interacting with small group	+	+	+	+	+	+	+	0	+	+	+	+	0	+
64^a	Adult interacting with large group	+	+	0	+	+	+	-	0	+	0	-	0	0	0
65^a	Teacher interacting with one child	+	+	+	+	0	+	+	0	+	+	+	0	0	0
66^a	Aide interacting with one child	+	+	+	+	0	+	+	0	+	+	+	0	0	0
67^a	Aide interacting with two children	+	+	0	+	0	+	+	0	+	0	0	0	0	0
68^a	Teacher interacting with two children	+	+	0	+	0	+	+	0	+	0	0	0	0	0
69^a	Teacher interacting with small group	+	+	+	+	+	+	+	0	+	+	+	+	0	0
70^a	Aide interacting with small group	+	+	+	+	+	+	+	0	+	+	+	+	0	0
71^a	Teacher interacting with large group	0	0	0	0	+	0	-	0	+	0	0	0	0	0
72^a	Aide interacting with large group	0	0	0	0	+	0	-	0	+	0	0	0	0	0

Appendix B (Concluded)

Variable Number		Far West Lab	U. of Arizona	Bank Street	U. of Georgia	U. of Oregon	U. of Kansas	High Scope	U. of Florida	EDC	U. of Pittsburgh	ILM	Southwest Lab BIK	Southwest Lab EnK	Southwest Lab LRD 1, 2
77[a]	Adult giving request or command to children	0	+	0	+	+	0	-	0	-	0	+	+	0	+
78[a]	Adult asking direct question of children	+	0	+	+	+	+	-	0	-	+	+	0	0	+
79[a]	Adult asking open-ended question of children	+	+	+	+	+	+	+	0	+	+	+	+	0	+
80[a]	Adult responding to children	+	+	+	+	+	+	+	0	+	+	+	+	0	0
81[a]	Adult instructing children	+	+	+	+	+	+	+	0	0	+	+	0	0	0
82[a]	Adult instructing children in academic activity	+	0	+	+	+	+	-	0	0	+	+	0	0	+
83[a]	Adult instructing children by using objects	+	+	+	+	0	+	+	0	+	+	0	0	+	0
85[a]	Adult commenting to children	0	+	+	+	+	+	+	0	+	0	+	0	0	0
86[a]	Adult in motion	+	+	+	+	0	+	+	0	0	+	+	0	0	0
88[a]	Adult praising children	0	+	0	+	+	+	+	0	0	+	+	0	+	0
89[a]	Adult praising children in task-related activity	0	+	0	+	+	+	+	0	0	+	+	0	0	+
91[a]	Adult giving specific praise to children	+	+	+	+	+	+	+	0	+	+	+	0	0	+
92[a]	Adult giving acknowledgment to children	+	+	+	+	+	+	+	0	+	+	+	0	0	0
93[a]	Adult giving task-related acknowledgment to children	+	+	+	+	+	+	+	0	+	+	+	0	0	0
95[a]	Adult giving nonverbal acknowledgment to children	+	+	+	+	0	+	+	0	+	+	+	0	0	0
96[a]	Adult making productive statement to children	+	+	+	+	+	+	+	0	+	+	+	+	0	+
97[a]	Adult giving corrective feedback to children	+	+	+	+	+	+	0	0	0	+	+	0	0	0
98[a]	Adult giving children positive corrective feedback for behavior	+	+	+	+	+	+	+	0	+	+	+	0	0	0
99[a]	Adult giving children positive corrective feedback in task-related activities	+	+	+	+	+	+	+	0	+	+	+	0	0	0
101[a]	Adult giving children negative corrective feedback for behavior	-	-	-	+	+	-	-	0	0	-	-	-	0	-
102[a]	Adult giving children firm corrective feedback for behavior	0	+	0	+	0	+	-	0	0	0	0	+	0	0
103[a]	Adult giving children negative corrective feedback for task-related work	-	-	-	+	+	-	-	0	-	-	-	0	0	-
104[a]	Adult giving any feedback	0	+	+	+	+	+	+	0	+	0	+	+	0	0
105[a]	Adult giving children feedback for academic responses to adult academic direct questions	+	+	+	+	+	+	+	0	0	+	+	0	0	+
107[a]	Adult not responding to children	-	-	-	0	-	0	-	0	-	-	-	0	0	0
108[a]	Adult attentive to children	+	+	+	+	0	+	+	0	+	0	+	0	0	+
109[a]	All positive behavior	+	+	+	+	+	+	+	0	+	0	+	0	0	+
110[a]	Adult showing positive behavior	+	+	+	+	+	+	+	0	+	0	0	0	0	0
111[a]	All negative behavior	-	-	-	0	-	-	-	0	-	-	-	-	0	0
112[a]	Adult showing negative behavior	-	-	-	0	-	-	-	0	-	-	-	-	0	0
116[a]	Academic events	+	+	+	+	+	+	+	0	-	+	+	0	0	0

Appendix C

FACTOR ANALYSIS VARIABLE LIST (ADULT FOCUSED)

Appendix C

FACTOR ANALYSIS VARIABLE LIST (ADULT FOCUSED)

A. SUMMARY INFORMATION

OSF Variables

15. Child/adult ratio

17. Movable tables and chairs for seating

18. Stationary desks in rows

26. Noise level

34. Single contained classroom within a building

35. Open classrooms

B. CLASSROOM CHECK LIST INFORMATION

CCL Variables

4. Arithmetic, numbers, math

5. Reading, alphabet, language development

14. Wide variety of activities

15. Teacher with one child in any academic activity

16. Teacher with two children in any academic activity

17. Teacher with small group in any academic activity

18. Teacher with large group in any academic activity

19. Aide with one child in any academic activity

20. Aide with two children in any academic activity

21. Aide with small group of any academic activity

28. Use of textbooks, work books and any symbolic objects in any academic activity

29. Use of language experience charts in Activity 5

30. Use of tapes, records, films, or TV in any academic activity

31. Use of games in Activities 4 and 5

32. Use of concrete objects in Activities 4 and 6

33. Use of science equipment, plants and animals

C. FIVE-MINUTE OBSERVATION INFORMATION

1. FMO Child Variables

    2. Child initiating interaction with adult

    15. Child giving request or command

    16. Child asking direct question

    17. Child asking open-ended question

    19. Child responding

    20. Child responding with academic theme

    21. Child responding to adult open-ended question

    24. Child instructing self in academic activity

    32. Child commenting to adult

    33. Child commenting to other children

    35. Child participating in general action

37. Child giving acknowledgment

38. Child making productive statement

40. Child giving corrective feedback

41. Child not responding

42. Child waiting

45. Child attentive to adult

48. All child motion

50. Child showing positive behavior

53. Child showing negative behavior

57. Child engaged in task-related activity

59. Child sharing life experiences

2. FMO Adult Variables

77. Adult giving request or command to children

78. Adult asking direct question of children

79. Adult asking open-ended question of children

82. Adult instructing children in academic activity

83. Adult instructing children by using objects

85. Adult commenting to children

86. Adult in motion

89. Adult praising children in task-related activity

93. Adult giving task-related acknowledgment to children

98. Adult giving children positive corrective feedback for behavior

99. Adult giving children positive corrective feedback in task-related activity

101. Adult giving children negative corrective feedback for behavior

103. Adult giving children negative corrective feedback for task-related activity

105. Adult giving children feedback for academic responses to adult academic direct question

106. Adult giving children feedback for academic response to adult open-ended question

107. Adult not responding to children

108. Adult attentive to children

110. Adult showing positive behavior

112. Adult showing negative behavior

116. Academic events

117. Adult interacting with child or children in task-related activity

Appendix D

TEACHER VARIABLE SPECIFICATION LIST

Appendix D

TEACHER VARIABLE SPECIFICATION LIST

Items were selected from the teacher questionnaires to examine: (1) the training received, (2) the satisfaction with the model, and (3) the years of teaching in Follow Through.

The following questions were to be counted and a percentage of yes/no answers of teachers responding per sponsor were tabulated.

Teacher Questionnaire

I Satisfaction with Model

A. If I had my choice about a way to teach, I would:

____Continue and use the model to the same extent that I do now . . 1

____Alter my teaching some, but continue to use the model 2

____Use some of the model in my teaching, but change most of it 3

____Not use the model at all 4

II Training

A. What special training did you receive when you first began to work in Follow Through? (Check only one.)

____None; I received no training before working in Follow Through 1

____Not much training; I used the experience and knowledge I already had 2

____Some training; I used some methods and approaches drawn from the Follow Through program, but also had to rely on my own experience and judgment 3

II Training (con't)

____A great deal of specific training; many of the things I did, I learned through my training for Follow Through . . . 4

B. How well do you think your training in Follow Through has prepared you to work with the sponsor's model?

____Very adequate 1

____Somewhat adequate 2

____Somewhat inadequate 3

____Very inadequate 4

C. Do you feel you would like more information and training in any of these areas (check the appropriate category):

For each of the categories below the following responses could be given:

1. I have received enough training.
2. A little more training would be helpful.
3. A great deal more training would be helpful.

____How to present structured materials to small groups of children

____How to effectively use rewards to shape behavior

____How to properly divide materials into small lessons and present them in the proper sequence

____How to use material that is relevant to the cultural background of the students in my class

____How to use an aide effectively in the classroom

____How to develop the child's basic problem solving and reasoning abilities

____How to promote optimal development of the child's self-concept

____How to develop the child's social interaction skills

____How to encourage children to make choices and carry out plans

____How to guide children in individual learning activities

____How to promote the development of intrinsic motivation

____How to diagnose individual learning problems

____How to train parents to use effective reinforcement techniques

____How to give parents a sense of participation in the school

III Years Taught in Follow Through

How many years have you taught in this Follow Through model?

Appendix E

STUDENT DEMOGRAPHIC DATA

Appendix E

STUDENT DEMOGRAPHIC DATA

The following items indicate data extracted from the demographic section of the Spring 1972 classroom rosters:

- Age in months (as of testing date)
- Sex: male
- Sex: female
- Ethnic origin: black
- Ethnic origin: nonblack
- Ethnic origin: other, missing data
- Months of Head Start or equivalent
- Months of Follow Through experience
- Number of days absent from school during 1971-72 school year.

The following items indicate data extracted from the Fall 1971 parent interview of the sample child's entering year. If there are no data from that year, or if the child entered the Follow Through program in midyear, the earliest available parent interview was used.

Highest education level of child's mother

- Grade school
- High school

- College
- Other, missing data

Head of household occupational status

- High (professional, semi-professional, proprietors, managers, and officials)
- Medium (clerical, sales, craftsman, foreman)
- Low (farmers, operatives, service workers, farm laborers, laborers)
- Other, missing data

Appendix F

PARTIAL CORRELATIONS BETWEEN TEST SCORES AND INDIVIDUAL ATTENTION

Appendix F

PARTIAL CORRELATIONS BETWEEN TEST SCORES AND INDIVIDUAL ATTENTION

CCL Variables

15. Teacher with one child in any academic activity
19. Aide with one child in any academic activity
23. Volunteer with one child in any academic activity
35. Any adult (T,A,V) with one child in any activity

Grade Level/ Stream:	Test	CCL Variable 15.	19.	23.	35.
K:	MAT Q	-.06	-.04	.18	-.13
	WRAT Q	.00	.02	.06	-.05
	MAT R	-.09	-.08	.12	-.15
	WRAT R	.01	.06	.06	-.04
	Peabody	.19	.16	.09	.20
	Gumpgookies	.00	.00	.02	.02
	Locus	.01	.02	.00	.01
1/ek:	MAT Q	.17	.15	.14	.17
	MAT R	.33	.33	.21	.33
	Gumpgookies	-.06	-.10	.00	-.05
	Locus	.04	.03	.04	.04
2/ek:	MAT Q	.10	.03	.04	.08
	MAT R	.12	.00	.17	.10
	Raven	.26	.12	.23	.25
	Coopersmith	.04	.06	-.02	.04
	IAR	.10	.01	.11	.10
1/ef:	MAT Q	.02	.03	.08	.02
	WRAT Q	.11	-.14	.09	.11
	MAT R	.01	.03	-.01	.00
	WRAT R	.03	.01	.16	.03
	Peabody	-.09	.05	-.03	-.10
	Gumpgookies	-.05	-.07	-.03	-.06
	Locus	-.08	.00	.06	-.08

Grade Level/ Stream: Test		CCL Variable 15.	19.	23.	35.
2/ef:	MAT Q	-.03	.17	-.13	-.03
	MAT R	.09	.25	-.09	.10
	Raven	.10	.01	-.04	.08
	Coopersmith	.05	.07	.00	.02
	IAR	.05	.04	-.13	.02
3/ef:	MAT Q	-.08	-.04	-.22	-.06
	MAT R	-.10	.02	-.10	-.10
	Raven	-.06	.02	-.04	-.06
	Coopersmith	.00	.07	-.03	.00
	IAR	-.02	.11	-.05	-.04

Appendix G

CLASSROOM OBSERVER COMMENTS

Table G-1

GENERAL CONCLUSIONS OF OBSERVERS BY SITE

	FW	UA	BC	UG	UO	UK	HS	UF	ED	UP	IL	SE
I Suggestions and comments												
(a) Scheduling												
Begin observations with child focus											X	
Adjust scheduling of observations according to school programs				X	X			X			X	
Do not place Kindergarten observations at beginning of schedule											X	
Random sampling of children is not up to date					X							
(b) Administration												
Provide school personnel with more information regarding observational duties (PR)	X		X		X					X	X	
Lessen amount of clerical work required										X	X	
Send manuals with the pre-training packets										X	X	
(c) Training												
Need for more materials for child focus					X							
Lengthen observation training period										X	X	
Provide for more classroom coding experience											X	X
Provide more for films on specific codes and variety of situations				X			X				X	
Provide coders opportunity for joint coding, needed for reliability							X				X	
Arrange videotape coding in the mornings											X	
Provide coded videotape in its entirety								X				
Consistency needed in trainers' interpretation of CCL and codes	X			X			X					
Limit codes used at beginning of training and gradually increase them	X											
Suggestions regarding, and/or difficulty with, specific codes		X	X	X	X	X				X		X
II Complaints												
Salaries unsatisfactory		X									X	
Teachers made anxious by presence of observers	X			X		X		X	X	X	X	
Teachers complained because unable to receive observational feedback	X						X				X	
Marking pens of inferior quality	X										X	
Difficulty keeping to FMOs												X
III Compliments												
Very appreciative of SRI trainers, training session activities and materials								X				
Training useful and effective	X											
Trainers were "patient and reliable"				X								
Observers well trained by SRI staff									X			
Complimentary about trainers and trainees			X									
Number of observers per site	3	3	3	3	2	3	4	3	3	3	3	3

Table G-2

NUMBER OF OBSERVERS REPORTING CODING DIFFICULTIES
BY SPONSOR, CODE, AND REASON

Code	FW	UA	BC	UG	UD	UK	HS	UF	ED	UP	IL	SE	Total	Reasons
5NV		1											1	Confusable
11NV		1											1	
6O						1							1	Confusable
9G						1							1	
CC							1			1			2	Confusable
EE							1			1			2	
LL										1			1	
1O				1			1						2	Too broad
S						1	2				1		4	Poorly trained
8	2	1			1						2		6	Confusable
5	2	2	1		1	1			1	3	1		12	
4	1					1				2			4	

Table G-3

SUMMARY OF SELECTED COMMENTS FROM THE WEEKLY ROSTER LISTS

Sponsor	Observer Number	Focus	
FW	4029	AF	Teacher left for in-service training; fourth grade joined focus class
UG	4035	AF	Teacher left room; teacher meeting; teacher left early
UK	4019	AF	Another classroom joined focus class; video equipment broke down
	4019	CF	No explanatory comments
	4021	AF	Class on field trip; teacher out of room one hour after lunch; aide and volunteers in room only in afternoon
	4021	CF	Child 13 and 27 in speech therapy class; two child focus children slept all afternoon
SE	4040	CF	No explanatory comments

Appendix H

OPERATIONAL DEFINITIONS OF CCL AND FMO CODES

Appendix H

OPERATIONAL DEFINITIONS OF CCL AND FMO CODES

Definitions of the codes as marked by the classroom observers on the Classroom Observation Instrument (COI). These definitions are taken from SRI's "Training Manual for Classroom Observation," revised January 1972.

A. Classroom Check List

The Classroom Check List (CCL), or classroom "snapshot," is the first part of the Five-Minute Observation and is coded four times an hour, just before each interaction recording.

The CCL attempts to record a series of relatively static pictures of the distribution of adults and children within activities. Essentially, the CCL assesses (1) activities occurring, (2) materials used within activities, (3) grouping patterns, (4) teacher and aide responsibilities, and (5) child independence.

The CCL records how teachers, aides, volunteers, and children spend their time during the day, with whom they spend it, and how often children are left to work independently of adult supervision. It consists of 18 activity categories in which a class might be routinely engaged during an ordinary day:

(1) Snack, Lunch. This activity refers to any and all group eating.

(2) Group Time. This refers to nonacademic activities. There is usually full group participation, such as morning opening activities (pledge of allegiance), planning for the day or for a party, sharing ideas or items (or show and tell), resting after lunch, or watching television for entertainment rather than for academic work. The appropriate circle following Planning, Sharing, Rest, and TV in the second column of the CCL should be filled in to distinguish which activity is taking place.

(3) Story, Singing, Dancing. Appropriate circles indicating adult and child grouping patterns are filled in when a story is being read or when singing and/or dancing are occurring. Further definers may be filled in if there are phonograph records being played or if the activity is teacher-directed or child-initiated.

(4) Arithmetic, Numbers, Math. This category has an additional column that includes Texts, Workbooks, Concrete Objects, Films, Slides, and Games as "tools" for teaching and learning math. The circles corresponding to these tools should be filled in to distinguish what methods of teaching and learning are being used; they are defined as follows:

- "Texts, Workbooks" refers to all sequenced programmed materials (mimeographed papers, books, and the like). The material can be commercially or teacher produced.
- "Concrete Objects" refers to any objects that can be picked up and held to demonstrate (to others or to oneself) number concepts and/or the theory of solving problems.
- "Films, Slides" refers to their frequent use as visual aids or as "machine teachers" in math instruction. If a TV is used, the circle corresponding to films and slides should be filled in.
- "Games" refers to any arithmetic, numbers, or math game that is being used for the purpose of teaching and learning math.

(5) Reading, Alphabet, Language Development. This category refers to any activity directed to the process(es) of teaching and learning language (reading, writing, and speech--usually English). It is broken down into Texts, Workbooks; Language Experience Charts, Tapes, Records, Films; and Games--all of which may be used as tools for teaching and learning language. They are defined as follows:

- "Texts, Workbooks" refers to all sequenced programmed materials (mimeographed exercises, written papers, books) that are related to language development. The material can be commercially or teacher produced.
- "Language Experience Charts" are materials derived from the children's own experiences that may be used in the course of learning language.

- "Tapes, Records, Films" are often used in language development. Other tools include earphones, reading machines, TV, and the like. Use of such equipment should be recorded in the circle adjacent to "Tapes, Records, Films."
- "Games" refers to any game used for the purpose of teaching and learning language.

(6) Social Studies, Geography. This category refers to the teaching and learning about peoples, life styles, culture patterns, and geography. It is subdivided into Texts, Workbooks; Concrete Objects; Symbolic Objects (maps, pictures); and Films, Slides--all of which may be used as tools for teaching and learning about social studies and geography.

(7) Science, Natural World. This category refers to the teaching and learning about plants, animals, minerals (care of, collection, comparison) and science concepts. It is subdivided into Texts, Workbooks; Plants, Animals; Science Equipment; and Films, Slides as tools for teaching and learning in this area. All of these have been defined except for Science Equipment, which refers to any apparatus or concrete objects used in the course of teaching and learning about science and the natural world.

(8) Guessing Games, Table Games, Puzzles. This category refers to all games and puzzles used in the classroom for academic or nonacademic purposes. At the time of observation, if the purpose of the game or puzzle is clearly academic or nonacademic and if it is apparent that it is either Teacher-Directed or Child-Initiated, the appropriate circle in the second column of Item 8 must be filled in.

(9) Arts, Crafts. This category refers to activities where there is a product of some kind and where the main emphasis is on imagination, fun, artistic skill, and use of the hands. The appropriate circle in the second column of this item should be filled in if the activity is Painting, Drawing, Cut-And-Paste, or Sculpture/Clay.

(10) Sewing, Cooking, Pounding, Sawing. These activities may be conducted as part of an Academic exercise (e.g., teaching/learning the concept of measurements, numbers, proportions, and so on while participating in one of these activities) or as a nonacademic exercise (play).

(11) Blocks, Trucks. This category refers to any activity where blocks and/or trucks are used.

(12) Dolls, Dress Up. This category refers to any activity, real or imaginary, that involves a doll, doll house, tea party, dressing up, going to the store and so on.

(13) Active Play. This refers to play in the classroom or outside that is organized or permitted by the teacher as part of the classroom routine and that is mobile rather than quiet or passive.

(14) Reliability Sheet. Item 14 on the CCL is coded whenever simultaneous observations occur. During the observation period in a community, an SRI trainer will observe with each SRI-trained classroom observer for the purpose of checking reliability. Both trainer and observer will mark the Reliability circle to indicate that they have coded together; this is a means of assessing the continuing reliability of observers.

Note: At the time the CCL is being filled out, an adult may not be interacting with children. Provision has been made for indicating that an adult is alone in Items 15, 16, 17, and 18. Three circles with the letters T, A, and V are located in the second column following each of these sections. The circle with a T in it is used to code a teacher alone, the circle with an A is used to code an aide alone, and the circle with a V in it is used to code a volunteer alone.

(15) Transitional Activities. An observer might record on the CCL at a moment when the class is moving from one activity to another. During this time persons who are "waiting," persons who are involved in washing hands or putting on coats, or persons who are actively standing in line to get materials, use equipment, or talk to the teacher are all coded.

(16) Classroom Management. Some classroom events or routines consist of distributing materials to the participants, setting up equipment and furniture, or gathering up materials or equipment. Such activities are coded under "Classroom Management."

(17) Out of Room. When the CCL is filled out all persons who are regularly a part of a classroom even though they are temporarily out of the room (as opposed to absent for the day) must be accounted for. All such temporarily absent persons are coded in Item 17 as "Out of Room."

(18) Observing/Other. This category is used to indicate persons who are observing some other activity or who cannot be classified in any of the other sections, for example:

- A child sitting at his desk staring out the window with no work of any kind in front of him.
- A teacher disciplining a small group in the corner.

Number of Adults in the Classroom. This entry records the total number of adults (excluding SRI observers) present in the classroom at the time the CCL is recorded. This number may vary during the day.

B. Five-Minute Observation

(1) The Who Column. This indicates who is doing the talking or the action:

Code	Code Usage
T - Teacher	The one person who is ultimately responsible for the everyday conduct of the classroom.
A - Aide	Classroom adults who are regular in their attendance and are paid through Head Start or Follow Through funds.
V - Volunteer	Any other adult in the classroom, such as a parent.
C - Child	When the focus of an observation is on a specific child, that child is "C" (other children are "D" - Different Child). When the focus is on an adult, "C" refers to any individual child with whom the adult is interacting; a second child coming into the interaction would be coded as "D."
D - Different Child	A second child in an interaction when the focus child "C" is being observed.
2 - Two Children	
S - Small Group	Three to 8 children.
L - Large Group	More than 8 children.
E - Everyone	Adults and children in unison.
M - Machine	Record player, tape recorder, and TV (where the machine is the initiator in an interaction).

(2) The To Whom Column. This indicates the person, group, or machine that is being talked to or interacted with:

Code	Code Usage
T	These codes are all the same as the codes for the Who column.
A	
V	
C	
D	
2	
S	
L	
E	
M	

(3) The What Column. It is assumed that all interactions are verbal unless marked NV (nonverbal). NV and certain codes from the How column are used in the examples below.

Code	Code Usage
1 - Command or Request	Code 1 asks for a response free of argument or speculation. There is one expected, acceptable response. The person commanding or requesting expects his demand or request to be carried out, verbally or nonverbally: • "Open your books, please." TS1 • "Read this sentence." TC1 • "Draw a line." TC1 • "Zip me up." CT1 • "Gimme that book." CD1

Code	Code Usage
1Q - Simple Question _Note_: The Q in this code is found in the _How_ column.	The 1Q code asks for recall of material already learned or a yes/no answer. It includes commands in question form: • "What do 2 and 2 make?" CT1Q • "Is your name Phillip?" TC1Q • "Will you add 2 and 2 for me?" TC1Q • "Will you shut the door?" TC1Q
2 - Request for Open-Ended Response	Code 2 invites opinions, free expression of feeling, expansion or extension of the original topic, complex or tangential ideas, description of a process. It may be phrased as a statement as well as a question: • "How does it feel to you (when contents of a bag can be felt but not seen)?" TC2 • "What do you do in the summer?" CT2 • "How did you mix that beautiful blue paint?" TC2 • "Tell me how an electric train works." TC2 • "Tell me how you felt about what happened." TC2

Code	Code Usage
3 - Response	Code 3 is a response to a question (1Q, 2), request (1), or corrective (9). When the response is concerned with basic academic skills, Code 3 is used with A in the "How" column:

• "Read the next sentence, Jimmy."	TC1
"The dog chased the ball."	CT3A
• "Will you add 2 and 2?"	TC1Q
"2 and 2 makes 4."	CT3A
• "Guess what I've brought for you."	CT2
"Flowers--or an apple."	CT3
• "Please shut the door."	TC1
The child shuts the door (nonverbal).	CT3NV
• "Did you save my painting?"	CTIQ
"Yes, it's hanging up."	TC3
• "Can you come now?"	CD1Q
"No--not yet."	DC3

Code	Code Usage
4 - Instruction	Code 4 is used when a teacher or child is: (1) Verbally giving new information to others, reviewing lessons, or explaining rules of behavior. (2) Nonverbally engaged in demonstrating or in an activity that is productive, organized, or exploratory (including game playing, blocks, dolls, and water play). When the interaction is concerned with the basic skills of reading, writing, spelling, and computation, Code 4 is used with A in the How column. If an object is being used as part of the instructional process, Code 4 is used with O in the How column.

Code	Code Usage	
	• "Flowers grow everywhere. There are many different kinds of flowers and they grow in many shapes and colors."	CL4
	• "Here is a game called 'Community People.' You play by matching the pictures on your card with those on the large card."	TS40
	• "This is how I'd like you to do these exercises: First, fold your paper in half like this. Then in half again like this. Then put the first problem in this square and the second here."	TS4A
	• "I made my puppet out of an old sock and I made his eyes from pieces of a crayon (holding puppet)."	CS40
	• "You have to add 3 and 7 here and carry the 1 over to this column; then add those."	CD4A
	• Child learning the shape of a letter by running his finger over a sandpaper letter on a card.	CC4NVAO
	• Child reading aloud to a small group of children.	CS4A
	• A child building a block tower.	CC4NVO
5 - Comments, Greetings	Code 5 is used for all comments, remarks, greetings, personal compliments, and general movement; 5 is also coded for classroom management tasks, recreation, and horseplay.	
	• "Hello."	CT5
	• "What a nice day it is!"	TC5
	• "You look so pretty in red, Sue."	TC5
	• Teacher passing out materials to a large group.	TL5NV

Code	Code Usage	
	• Two children tossing a pencil back and forth.	225NV
	• Two children playing tag around the room.	225NVX
	• Child pouring paint on the floor.	CC5NV-
6 - Praise	Code 6 is used for praise of task or behavior. Praise in subject matter areas is coded 6 with Sy in the How column (see definition of Sy on p. 53):	
	• "What a pretty picture you've made!"	TC6Sy
	• "I like your story about your trip, Jim."	TC6Sy
	• "You've done a fine job on your math workbook."	TC6Sy
	• "I'm really proud of you, class, for behaving so well while Mr. Jones was here."	TL6
7 - Acknowledge	An indication that a response or statement is recognized or agreed with is coded 7. Another form of acknowledgment is to repeat someone else's statement immediately. Code 7 with Sy in the How column is used to indicate acknowledgment of a response having to do with subject matter:	
	• Nodding or smiling (nonverbal).	TC7NV
	• "Yes, that's right."	TC7
	• "That math problem is correct so far."	TC7Sy
	• "What do you think is in this bag, Peter?"	TC2
	"I think it's a carrot."	CT3
	"You think it's a carrot."	TC7Sy

Code

Code Usage

8 - Productive Statement

Code 8 is used for a task-related statement about the curricular activity or problem at hand in which children and/or adults are involved. (Curricular activity is any activity planned or arranged by the teacher.)

- Two children making clay animals:

C:	"This clay makes my hands sticky."	CD8
D:	"The horn won't stay on my cow."	DC8
C:	"Mine doesn't have a horn."	CD8

- Teacher is conducting a Show and Tell period:

T:	"What did you do over the weekend?"	TL2
C:	"I went to the zoo with my daddy."	CT3L
D:	"The tigers are really big."	DT8
C:	"The elephants are bigger."	CD8

- Three children are working with metal washers and a balance:

C:	"I think 3 big washers will balance 4 small ones."	C28A
D:	"I'll try it."	DC8A
D:	"I sure like your cowboy boots."	DC5
C:	"It balanced!"	C28A+

9 - Corrective Feedback

Corrective Feedback is the attempt to change or modify behavior. Code 9 is used when the subject of the observation tries to change another's behavior or corrects answers.

Codes G, R, Q, F, or P from the How column are coded with 9 to show the method used to effect behavior modification (see the descriptions of codes in the How column, pp. 49-51).

Code 9 is used with Sy in the How column to indicate corrective feedback in subject matter areas:

• "I hear lots of chattering."	TL9
• "Don't throw your ball aginst the wall; come and play on the swing."	TC9G

Code	Code Usage	
	• "Look, class, I like the way Jimmy is sitting so quietly."	TL9G
	• "You can't do that now; there won't be room for you until John finishes."	TC9R
	• "Stop that!"	CD9F
	• "If you continue to talk, you'll have to stay in at recess."	TC9P
	• "Are you sure Sacramento is the capital of New Mexico?"	TC9QSy
	• "The answer to that problem is wrong."	CD9Sy
10 - No Response	Code 10 is used for no response when a response is called for and none is forthcoming to complete the interaction:	
	• "Teacher, may I be next?"	CT1Q
	Teacher does not reply because she is talking to another child.	TC10
	"Jimmy, let me play with you."	CD1
	Jimmy does not look up or answer.	DC10
11 - Waiting, Dead Time	Code 11 is used to code the subject of the observation waiting in line or for materials, attention, use of equipment, and activity change. It is also used when the subject is not attending or not involved with anyone or anything:	
	• Child waiting at the teacher's desk while the teacher works with another child.	CC11NV
	• Child has finished his work and is sitting at his desk staring off into space.	CC11NV

Code	Code Usage	
12 - Observing, Listening	Code 12 is used when the subject of the observation is listening to or watching other people, other activities, TV, slides, films, and the like:	
	• A child sitting on his chair is watching a small group on the rug play with blocks.	CS12NV
	• Child listens to another child give a report.	CD12NV
	• Teacher stands watching the children and activities in the room.	TL12NV
	• Child watching "Sesame Street" on TV.	CM12NV
NV - Nonverbal	When the action being coded is not accompanied by words, NV is coded in the What column together with the other relevant codes:	
	• Teacher passes out material silently to a small group.	TS5NV
	• Child taps the teacher's arm without speaking, requesting her attention.	CT1NVT
X - Movement	Code X is used when the subject of the observation completely moves and for complete movement of a person with whom the subject is interacting. X can be used with any What code. If the movement is nonverbal and no What code is applicable, code X with 5:	
	• Teacher moves about the room while lecturing to the class.	TL4X
	• Child asks, "Miss Smith, will you help me?" while moving to the teacher.	CT1QX
	• Child moves to his seat in response to a request from the teacher.	CT3NVX
	• Child moves up to the teacher and stands there saying nothing.	CT5NVX

(4) The How Column. These categories are used in conjunction with the What codes.

Code	Code Usage
+ Happy or Positive Feeling	Laughing, smiling, child excitedly jumping up and down, exuberance, enthusiasm.
- Negative, Sad Feeling	Annoyance or anger, look of displeasure, whining voice, sulking, name-calling, frown, tears, yelling, trembling chin, quavering voice, cringing. Negative acts such as pouring paint on the floor; nasty comments.
A - Academic	Basic skills as measured on achievement tests: reading, writing, spelling, and computation. Coded only with 3 and 4 in the What column.
T - Touch	Tap on the arm, hugging, hitting, fighting, spanking: +T = happy or warm touch; -T = pushing, shoving; other negative touches PT = spanking or hitting.
G - Guide to Alternative	Code G is used with 9 in the What column when a child is guided or directed to an alternative acceptable behavior or activity. This code does not freeze activity but redirects it. G includes praising good behavior in a child or group of children to guide other children to more acceptable behavior. • "Johnny, go and play with Jimmy instead of bothering David." TC9G • "Try using the balance to add 9 and 3 instead of counting on your fingers." TC9GSy • Moving a child from where he is misbehaving and placing him in the lunch line. TC9NVG • "Class, look how neatly Jimmy's letters are formed." TC9GSy • "Janet, I like the way you're sitting so quietly!" (when other children are noisy or inattentive) TL9G

Code	Code Usage
R - Reason	R is coded with 9 in the What column when the child is given a reason why he needs to change his behavior or activity or his approach to a problem or task: • "Don't throw your ball there, you might break the window." TC9R • "You'll have to be quiet so others can hear the story." TC9R
C - Cooperate	When the subject of the observation is involved in a combined effort with another to achieve either a product or another mutual goal, the activity is coded with a C in the How column: • Two boys making a papier mâché animal together. 224NVCO • Small group painting a mural together. SS4NVCO • Six children cleaning up the classroom. SS5NVC Note: The special code CT (Cooperate with Touch) is coded to show physical help, such as helping another tie his shoes, tieing an apron on another, pushing a child in a swing, and the like.
Q - Question	Code Q is used when a 1Q question is asked and with 9 when a mistake is pointed out by asking a question: • "Are you coming with me?" CD1Q • "Do 3 and 4 really equal 9?" TC9QSy • "Are you sure that's the right answer?" TC9QSy • "Are you ready to quiet down and get to work now?" TC9Q

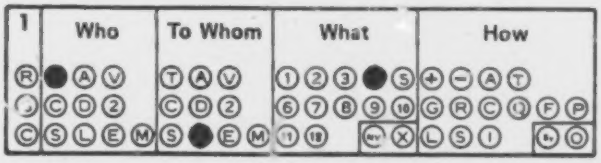
Code	Code Usage	
F - Firm	A no-nonsense emphatic tone of voice, which demands a certain behavior or change in behavior, is coded F and is usually used with 9.	
	• "Johnny, don't do that again!"	TC9F
	• "Come here this minute!"	TC9F
	• "Stop that!"	CD9F
P - Punish	This code covers a range of disciplinary or behavior-modifying techniques including sarcastic or caustic verbal remarks, threats, withholding of routine or new privileges, isolation, physical punishment:	
	• "Why can't you be careful like David?"	TC9P
	• "You're so messy!"	CD9P
	• "If you do that again, you'll have to stay in at recess."	TC9P
	• "I see you two are talking again, so you won't be able to go to the art room."	T29P
	• Whack! (Nonverbal)	CDNVPT
	• "You are a naughty boy!" (with spanking)	TC9PT
L - Life Experience	When a child or teacher tells of an experience that is related to his life away from the classroom, Code L is used:	
	• "My mother and I went hunting turtles yesterday."	CT5L
	• "My father has two false teeth."	CD5L
	• "Children, I brought you some candy that my daughter made last night."	TL5L

Code	Code Usage
S - Specific	Code S is used with Codes 6 and 7 to indicate that the feedback given mentions something specific or special about a person or his product: • "I like the way you made that bear look so furry." (As opposed to: "What a nice bear!") TC6SSy • "Your building looks as if it will stand there forever." (As opposed to: "That's a good building.") TC7SSy
I - Imaginary	Code I is used to identify any action of the subject of the observation while he is assuming the role of another or is pretending to be in another situation. Therefore, any What code can be used with I: • Child to imaginary friend: "No, Jenny, you mustn't do things like that." CC9I • Two girls dressed up in adult clothes, one saying to the other: "And how is your husband feeling, Mrs. Jones?" CD1QI • Child pretending he is in a racing car, hands placed on an imaginary steering wheel. CC5NVI
O - Concrete Object	Code O indicates that the subject of the observation is using an object as part of an instructional or learning situation; thus, O is used only with 4: • Child using a balance to help solve a math problem. CC4NVAO • Child working with clay, making a pot. CC4NVO • Child studying a rock in the science corner or using a microscope or a magnifying glass. CC4NVO

Code	Code Usage
Sy - Subject Matter	Sy is used with the feedback Codes 6, 7, and 9 to indicate subject matter content as distinguished from behavioral content: • "Your story about the dog is very well written." TC6Sy • "That's right--4 is the answer to that problem." TC7Sy • "You've left out the period at the end of that sentence." TC9Sy

Ⓡ REPEAT, Ⓢ SIMULTANEOUS, and Ⓒ CANCEL are located in the left-hand margin of each intersection block.

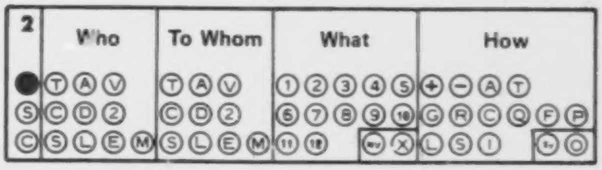
Code	Code Usage
Ⓡ - Repeat	If the interaction being observed continues without change or interruption, Code Ⓡ is used in subsequent frames approximately every 5 seconds until the action is interrupted by another interaction, or stops. Ⓡ repeats the interaction from the frame above.
Ⓢ - Simultaneous	Simultaneous coding is used to record separate interactions occurring within (at the same time as) the main focus of the observation. Use primarily to show inattention of children when a teacher or machine is instructing. A teacher is lecturing to a large group of children:



TL4

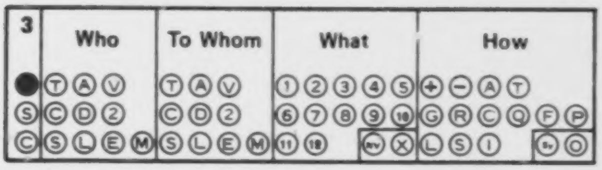
Code	Code Usage

She continues with her uninterrupted lecture (Ⓡ is coded every 5 seconds as she continues):



2	Who	To Whom	What	How
●	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ NV Ⓧ	Ⓛ Ⓢ Ⓘ I+ Ⓞ

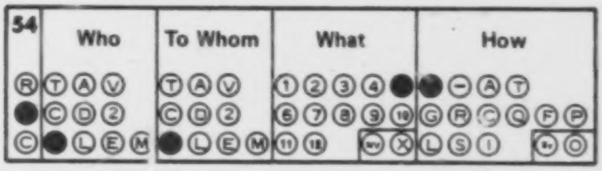
R



3	Who	To Whom	What	How
●	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ NV Ⓧ	Ⓛ Ⓢ Ⓘ I+ Ⓞ

R

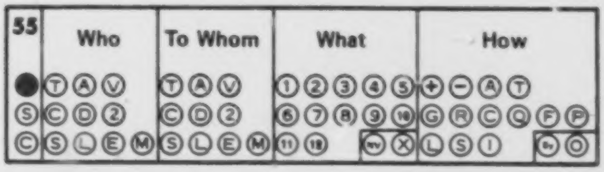
When a small group starts giggling while the teacher continues lecturing, Code Ⓢ is used in the left margin of the next interaction block; then the new interaction (small group giggling) is coded in the same block to show the children's inattention:



54	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ●	● ⊖ Ⓐ Ⓣ
●	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	● Ⓛ Ⓔ Ⓜ	● Ⓛ Ⓔ Ⓜ	⑪ ⑫ NV Ⓧ	Ⓛ Ⓢ Ⓘ I+ Ⓞ

SSS5 +

If the dual activity of "teacher lecturing-children giggling" continues for more than 5 seconds, Code Ⓡ is used in the next interaction block(s) to show the continuation of the situation:

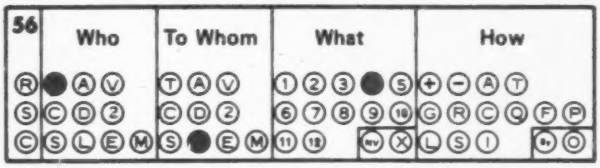


55	Who	To Whom	What	How
●	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ NV Ⓧ	Ⓛ Ⓢ Ⓘ I+ Ⓞ

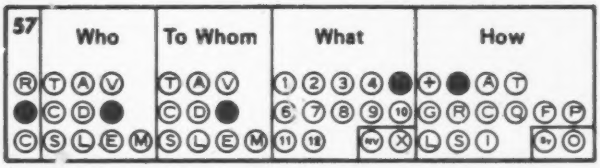
R

Code | Code Usage

If a different interruption occurs (e.g., two children arguing) during the same lecture the first coding (TL4) is returned to before the new interruption is coded:


56
Who
To Whom
What
How

TL4

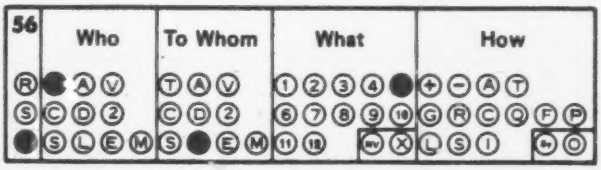

57
Who
To Whom
What
How

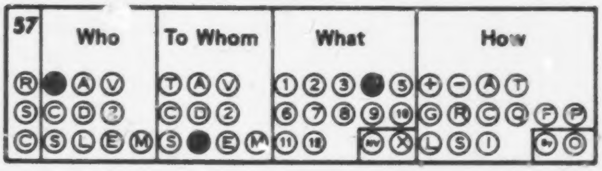
S225 -

ⓒ - Cancel

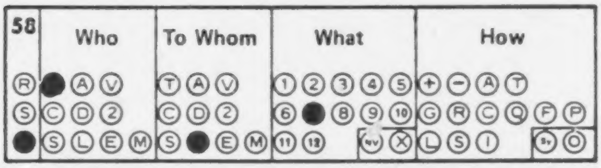
When a mistake is made in coding an interaction, Code ⓒ is used in the left-hand margin of the miscoded block and the next block is marked. ⓒ is also marked when the observer becomes confused in her coding, for example:

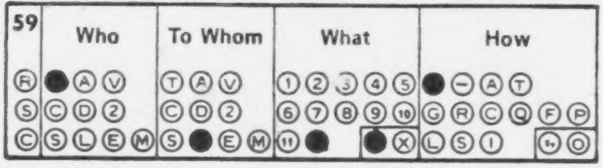
Teacher is lecturing to a large group.
Observer mistakenly codes TL5.
Code ⓒ is used in that block to show the error and Code TL4 is marked in the next block:


56
Who
To Whom
What
How


57
Who
To Whom
What
How

Code	Code Usage
	Observer is coding an interaction. She forgets a code and is momentarily blank. She records Code Ⓒ and begins again, for example:

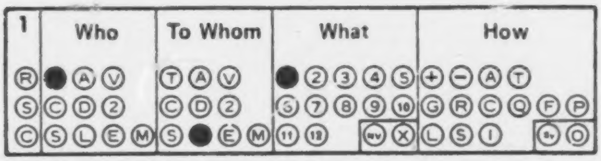

58
Who
To Whom
What
How


59
Who
To Whom
What
How

c. Examples of Coding

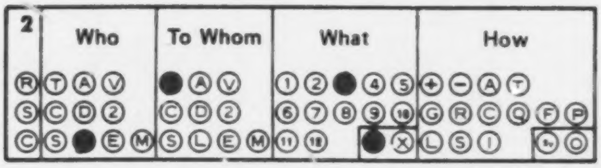
After the group to be observed has been selected and the participation, activity, and time started have been recorded, the observer should begin immediately to record the interactions in the group being observed. These interactions are recorded in the boxes numbered 1 through 76, using the codes as defined on pp. 40-56. One box is used for each interaction recorded. For example:

Teacher: "Please sit down, class."


1
Who
To Whom
What
How

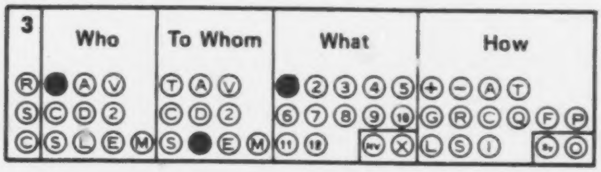
TL1

Class sits down as requested.


2
Who
To Whom
What
How

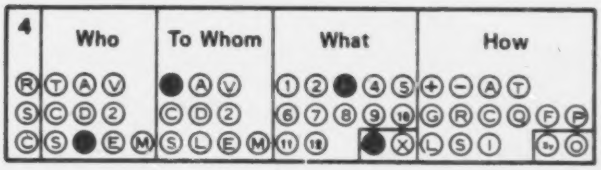
LT3NV

Teacher: "Open your books to page 43."


3
Who
To Whom
What
How

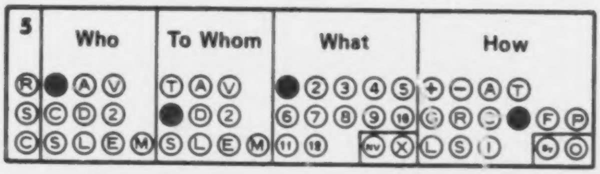
TL1

Class does as requested (opens books).


4
Who
To Whom
What
How

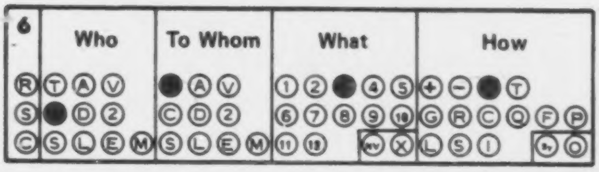
LT3NV

Teacher: "John, will you please read that page for us?"


5
Who
To Whom
What
How

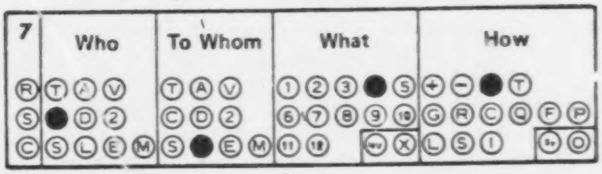
TC1Q

John reads as requested.


6
Who
To Whom
What
How

CT3A

John continues to read to class.



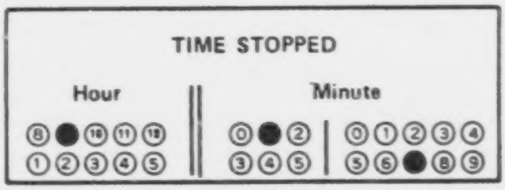
CL4A

An average of 5 seconds is expected for coding each interaction frame. Some observers may go somewhat faster or slower, but an effort should be made to enter 60 interactions during the FMO period. Each observer will develop his own pace.

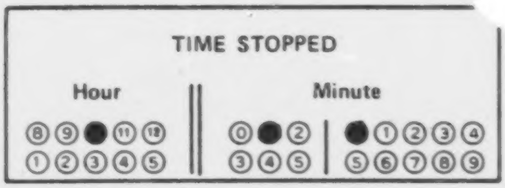
It is important to remember to code complete interactions.

d. Time Stopped

At the end of exactly 5 minutes, the observer must stop coding and write the time in the box marked "Time Stopped" on the last page of the observation sheet. For example, if coding is stopped at 9:17, the Time Stopped box would be filled in like this:



If coding is stopped at 10:10, the Time Stopped box would be filled in like this:



Although it is important that the observation be exactly 5 minutes, it is more important to be accurate in showing the actual times started and stopped.

e. Activity

The activity box is filled in at the end of the FMO form only if the activity initially recorded has changed during the course of the FMO. Numbers in the activity box refer to the numbers in the CCL. For example:

> Activity at the beginning of the FMO coding was CCL Item 4. (Arithmetic, Numbers, Math.) During the course of the coding the teacher changed the activity to CCL Item 7. (Science, Natural World.) The observer must code this change at the end of the observation.

ACTIVITY	
1 ○	10 ○
2 ○	11 ○
3 ○	12 ○
4 ●	13 ○
5 ○	14 ○
6 ○	15 ○
7 ○	16 ○
8 ○	17 ○
9 ○	18 ○

ACTIVITY								
1	2	3	4	5	6	7	8	9
○	○	○	○	○	○	●	○	○
10	11	12	13	14	15	16	17	18
○	○	○	○	○	○	○	○	○

Appendix I

CLASSROOM OBSERVATION INSTRUMENT

FILMED FROM BEST AVAILABLE COPY

SRI CLASSROOM OBSERVATION INSTRUMENT

5440

Classroom Summary Information
Physical Environment Information

DIRECTIONS: Make sure that all of the identifying information has been entered on the classroom summary information form prior to your observation of physical environment. Do not make any stray marks outside the boxes provided in places where written information is required. Make sure you code the classroom summary information form booklet Identification Number in the I.D. grid of all booklets used in the observation.

TEACHER NUMBER							
⓪	⓪	⓪	⓪	⓪	⓪	⓪	⓪
①	①	①	①	①	①	①	①
②	②	②	②	②	②	②	②
③	③	③	③	③	③	③	③
④	④	④	④	④	④	④	④
⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤
⑥	⑥	⑥	⑥	⑥	⑥	⑥	⑥
⑦	⑦	⑦	⑦	⑦	⑦	⑦	⑦
⑧	⑧	⑧	⑧	⑧	⑧	⑧	⑧
⑨	⑨	⑨	⑨	⑨	⑨	⑨	⑨

Grade	
⓪	⓪
①	①
②	②
③	③
④	④
⑤	⑤
⑥	⑥
⑦	⑦
⑧	⑧
⑨	⑨

OBSERVER NUMBER			
⓪	⓪	⓪	⓪
①	①	①	①
②	②	②	②
③	③	③	③
④	④	④	④
⑤	⑤	⑤	⑤
⑥	⑥	⑥	⑥
⑦	⑦	⑦	⑦
⑧	⑧	⑧	⑧
⑨	⑨	⑨	⑨

TODAY'S DATE					
MO.		DAY		YR.	
⓪	⓪	⓪	⓪	⓪	⓪
①	①	①	①	①	①
②	②	②	②	②	②
③	③	③	③	③	③
④	④	④	④	④	④
⑤	⑤	⑤	⑤	⑤	⑤
⑥	⑥	⑥	⑥	⑥	⑥
⑦	⑦	⑦	⑦	⑦	⑦
⑧	⑧	⑧	⑧	⑧	⑧
⑨	⑨	⑨	⑨	⑨	⑨

I. D. NUMBER			
⓪	⓪	⓪	⓪
①	①	①	①
②	②	②	②
③	③	③	③
④	④	④	④
⑤	⑤	⑤	⑤
⑥	⑥	⑥	⑥
⑦	⑦	⑦	⑦
⑧	⑧	⑧	⑧
⑨	⑨	⑨	⑨

FOR NCS USE ONLY				
⓪	⓪	⓪	⓪	⓪
①	①	①	①	①
②	②	②	②	②
③	③	③	③	③
④	④	④	④	④
⑤	⑤	⑤	⑤	⑤
⑥	⑥	⑥	⑥	⑥
⑦	⑦	⑦	⑦	⑦
⑧	⑧	⑧	⑧	⑧
⑨	⑨	⑨	⑨	⑨

Teacher: ______________________

School/Center: ______________________

City & State: ______________________

Observer: ______________________

Street Address: ______________________

City & State: ______________________

Telephone: ______________________

CLASSROOM SUMMARY INFORMATION

① ② Number of teachers

⓪ ① ② Number of aides

⓪ ① ② ③ Number of volunteers present today

Total class duration:

○2½ hr. ○3 hr. ○3½ hr. ○4 hr.
○4½ hr. ○5 hr. ○5½ hr. ○6 hr.

Classroom Summary Information (Cont.)

A		B	
⓪	⓪	⓪	⓪
①	①	①	①
②	②	②	②
③	③	③	③
④	④	④	④
⑤	⑤	⑤	⑤
⑥	⑥	⑥	⑥
⑦	⑦	⑦	⑦
⑧	⑧	⑧	⑧
⑨	⑨	⑨	⑨

A. Number of children enrolled

B. Number of children present today

PHYSICAL ENVIRONMENT INFORMATION
(Mark all that apply.)

Seating Patterns:

○ Movable tables and chairs for seating purposes.
○ Stationary desks in rows.
○ Assigned seating for at least part of the day.
○ Children select their own seating locations.
○ Teacher assigns children to groups.
○ Children select their own work groups.

PHYSICAL ENVIRONMENT INFORMATION (Continued) – Mark all that apply.

Playground Facilities/Use/Activities

○ Playground equipment in new condition.
○ Playground equipment in old condition.
○ Playground equipment seems to be used a lot.

Playground activity directed by adults:

○ Always
○ Sometimes
○ Never

Condition of Building

Yes	No	
○	○	Is the school building in good condition?

Noise Level

Yes	No	
○	○	Adults seem to have difficulty making themselves heard (have to repeat questions, ask the children to be quiet, etc.)
○	○	Children are noticeably disturbed in their work by the noise level.

Lighting

Yes	No	
○	○	Physical lighting seems adequate.
○	○	Some areas of the room are noticeably lighter/darker than the rest.

Heating and Ventilating

Yes	No	
○	○	Some areas of the classroom are noticeably warmer/cooler than the rest. (Direct sunlight, proximity to heating system, etc.)
○	○	Classroom is comfortably heated.

Displays in Classroom

Yes	No	
○	○	Children's own art on display.
○	○	Photographs of the children on display.
○	○	Pictures of various ethnic groups on display.
○	○	Community events posted.
○	○	Other (Specify) →

NOTE: Do not write outside this box

Description of Classroom Space

Yes	No	
○	○	Single contained classroom within a building.
○	○	Open classrooms.
○	○	Portable classrooms.

Space per Child

Yes	No	
○	○	Does there seem to be adequate space per child?

CLASSROOM OBSERVATION PROCEDURE

CLASSROOM CHECK LIST (be sure to code **EVERYONE** in the class)

				ONE CHILD	TWO CHILDREN	SMALL GROUPS	LARGE GROUPS
A	1. Snack, lunch			T ①②③	T ①②③	T ①②③④	T ①②
				A ①②③	A ①②③	A ①②③④	A ①②
				V ①②③	V ①②③	V ①②③④	V ①②
				i ①②③	i ①②③	i ①②③④	i ①②
B	2. Group time	Planning	○	T ①②③	T ①②③	T ①②③④	T ①②
		Sharing	○	A ①②③	A ①②③	A ①②③④	A ①②
		Rest	○	V ①②③	V ①②③	V ①②③④	V ①②
		TV	○	i ①②③	i ①②③	i ①②③④	i ①②
	3. Story Singing Dancing	Records	○	T ①②③	T ①②③	T ①②③④	T ①②
		Teacher-Directed	○	A ①②③	A ①②③	A ①②③④	A ①②
		Child-Initiated	○	V ①②③	V ①②③	V ①②③④	V ①②
				i ①②③	i ①②③	i ①②③④	i ①②
C	4. Arithmetic Numbers Math	Texts, Workbooks	○	T ①②③	T ①②③	T ①②③④	T ①②
		Concrete Objects	○	A ①②③	A ①②③	A ①②③④	A ①②
		Films, Slides	○	V ①②③	V ①②③	V ①②③④	V ①②
		Games	○	i ①②③	i ①②③	i ①②③④	i ①②
	5. Reading Alphabet Lang. Development	Texts, Workbooks	○	T ①②③	T ①②③	T ①②③④	T ①②
		Lang. Experience Charts	○	A ①②③	A ①②③	A ①②③④	A ①②
		Tapes, Records, Films	○	V ①②③	V ①②③	V ①②③④	V ①②
		Games	○	i ①②③	i ①②③	i ①②③④	i ①②
D	6. Social Studies Geography	Texts, Workbooks	○	T ①②③	T ①②③	T ①②③④	T ①②
		Concrete Objects	○	A ①②③	A ①②③	A ①②③④	A ①②
		Symbolic Objects	○	V ①②③	V ①②③	V ①②③④	V ①②
		Films, Slides	○	i ①②③	i ①②③	i ①②③④	i ①②
	7. Science Natural World	Texts, Workbooks	○	T ①②③	T ①②③	T ①②③④	T ①②
		Plants, Animals	○	A ①②③	A ①②③	A ①②③④	A ①②
		Science Equipment	○	V ①②③	V ①②③	V ①②③④	V ①②
		Films, Slides	○	i ①②③	i ①②③	i ①②③④	i ①②
E	8. Guessing Games Table Games Puzzles	Teacher-Directed	○	T ①②③	T ①②③	T ①②③④	T ①②
		Child-Initiated	○	A ①②③	A ①②③	A ①②③④	A ①②
		Academic	○	V ①②③	V ①②③	V ①②③④	V ①②
		Non-Academic	○	i ①②③	i ①②③	i ①②③④	i ①②
F	9. Arts, Crafts	Painting	○	T ①②③	T ①②③	T ①②③④	T ①②
		Drawing	○	A ①②③	A ①②③	A ①②③④	A ①②
		Cut-And-Paste	○	V ①②③	V ①②③	V ①②③④	V ①②
		Sculpture/Clay	○	i ①②③	i ①②③	i ①②③④	i ①②
	10. Sewing Cooking Pounding Sawing			T ①②③	T ①②③	T ①②③④	T ①②
		Academic	○	A ①②③	A ①②③	A ①②③④	A ①②
		Non-Academic	○	V ①②③	V ①②③	V ①②③④	V ①②
				i ①②③	i ①②③	i ①②③④	i ①②
G	11. Blocks Trucks			T ①②③	T ①②③	T ①②③④	T ①②
				A ①②③	A ①②③	A ①②③④	A ①②
				V ①②③	V ①②③	V ①②③④	V ①②
				i ①②③	i ①②③	i ①②③④	i ①②
	12. Dolls Dress Up			T ①②③	T ①②③	T ①②③④	T ①②
				A ①②③	A ①②③	A ①②③④	A ①②
				V ①②③	V ①②③	V ①②③④	V ①②
				i ①②③	i ①②③	i ①②③④	i ①②
H	13. Active play			T ①②③	T ①②③	T ①②③④	T ①②
				A ①②③	A ①②③	A ①②③④	A ①②
				V ①②③	V ①②③	V ①②③④	V ①②
				i ①②③	i ①②③	i ①②③④	i ①②
	14. RELIABILITY SHEET		○				

		ONE CHILD	TWO CHILDREN	SMALL GROUPS	LARGE GROUPS
15. Transitional Activities (Washing Hands, Standing in Lines, Going to Bathroom, etc.)	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②
16. Classroom Management (Handing out Paper, Cleaning up, etc.)	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②
17. Out of Room	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②
18. Observing/Other	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②

NUMBER OF ADULTS IN CLASSROOM ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

FIVE-MINUTE OBSERVATION

REMINDERS

SIT, LOOK AND GET A FEEL FOR THE CLASSROOM!

TRY CODING MENTALLY. WHAT CODES DO YOU EXPECT TO USE IN ALL COLUMNS: Who, To Whom, What, and How. (Please code the appropriate adult - T,A,V - in the Who and To Whom columns.)

LOOK FOR COMPLETE INTERACTIONS – Stimulus and Response – AND DON'T FORGET THE HOW COLUMN!

REMEMBER TO RECORD MOVEMENT IN AND OUT OF GROUP BEING OBSERVED.

REMEMBER TO CODE CONCRETE – O – AND SYMBOLIC – Sy – OBJECTS IN THE HOW COLUMN WHEN APPROPRIATE.

ALWAYS REMEMBER TO FILL IN TIME STARTED AND TIME STOPPED.

REMEMBER TO CODE THE ACTIVITY OBSERVED AT THE BEGINNING AND CODE ANY ACTIVITY CHANGE AT THE END.

RE–CHECK YOUR FIVE–MINUTE–OBSERVATION AND MAKE SURE THAT ALL CIRCLES ARE FILLED IN!

PLEASE REMEMBER TO BE QUIET AND COURTEOUS WITH ALL ADULTS AND CHILDREN!

What's happening? →

(Do not write outside this box)

Number of Children ①②Ⓢ Ⓛ

ADULT	Directing	Participating	Observing
Teacher	○	○	○
Assistant/Aide	○	○	○
Volunteer	○	○	○

FOR NCS USE ONLY

⓪	⓪	⓪	⓪	⓪
①	①	①	①	①
②	②	②	②	②
③	③	③	③	③
④	④	④	④	④
⑤	⑤	⑤	⑤	⑤
⑥	⑥	⑥	⑥	⑥
⑦	⑦	⑦	⑦	⑦
⑧	⑧	⑧	⑧	⑧
⑨	⑨	⑨	⑨	⑨

ACTIVITY

1 ○	10 ○
2 ○	11 ○
3 ○	12 ○
4 ○	13 ○
5 ○	14 ○
6 ○	15 ○
7 ○	16 ○
8 ○	17 ○
9 ○	18 ○

Pupil Code

⓪	⓪
①	①
②	②
③	③
④	④
⑤	⑤
⑥	⑥
⑦	⑦
⑧	⑧
⑨	⑨

TIME STARTED

Hour		Minute	
⑧⑨⑩⑪⑫	⓪①②	⓪①②③④	
①②③④⑤	③④⑤	⑤⑥⑦⑧⑨	

1	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sv) Ⓞ

2	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sv) Ⓞ

3	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sv) Ⓞ

4	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sv) Ⓞ

5	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sv) Ⓞ

6	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sv) Ⓞ

7	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sv) Ⓞ

8	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sv) Ⓞ

9	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sv) Ⓞ

10	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sv) Ⓞ

11	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sv) Ⓞ

12	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sv) Ⓞ

13	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sv) Ⓞ

14	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sv) Ⓞ

15	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sv) Ⓞ

16	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sv) Ⓞ

17	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sv) Ⓞ

18	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sv) Ⓞ

19	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sv) Ⓞ

20	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sv) Ⓞ

21	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

31	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

22	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

32	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

23	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

33	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

24	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

34	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

25	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

35	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

26	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

36	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

27	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

37	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

28	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

38	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

29	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

39	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

30	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

40	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

41	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

42	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

43	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

44	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

45	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

46	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

47	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

48	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

49	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

50	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

51	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

52	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

53	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

54	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

55	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

56	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

57	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

58	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

59	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

60	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

61	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

62	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

63	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

64	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

65	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

66	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

67	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

68	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

69	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

70	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

71	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

72	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

73	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

74	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

75	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

76	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

TIME STOPPED

Hour	Minute	
8 9 10 11 12	0 1 2	0 1 2 3 4
1 2 3 4 5	3 4 5	5 6 7 8 9

ACTIVITY

1	2	3	4	5	6	7	8	9
○	○	○	○	○	○	○	○	○
10	11	12	13	14	15	16	17	18
○	○	○	○	○	○	○	○	○

SRI

CLASSROOM OBSERVATION PROCEDURE

CLASSROOM CHECK LIST (be sure to code **EVERYONE** in the class)

				ONE CHILD	TWO CHILDREN	SMALL GROUPS	LARGE GROUPS
A	1. Snack, lunch			T ①②③	T ①②③	T ①②③④	T ①②
				A ①②③	A ①②③	A ①②③④	A ①②
				V ①②③	V ①②③	V ①②③④	V ①②
				i ①②③	i ①②③	i ①②③④	i ①②
B	2. Group time	Planning	○	T ①②③	T ①②③	T ①②③④	T ①②
		Sharing	○	A ①②③	A ①②③	A ①②③④	A ①②
		Rest	○	V ①②③	V ①②③	V ①②③④	V ①②
		TV	○	i ①②③	i ①②③	i ①②③④	i ①②
	3. Story Singing Dancing	Records	○	T ①②③	T ①②③	T ①②③④	T ①②
		Teacher-Directed	○	A ①②③	A ①②③	A ①②③④	A ①②
		Child-Initiated	○	V ①②③	V ①②③	V ①②③④	V ①②
				i ①②③	i ①②③	i ①②③④	i ①②
C	4. Arithmetic Numbers Math	Texts, Workbooks	○	T ①②③	T ①②③	T ①②③④	T ①②
		Concrete Objects	○	A ①②③	A ①②③	A ①②③④	A ①②
		Films, Slides	○	V ①②③	V ①②③	V ①②③④	V ①②
		Games	○	i ①②③	i ①②③	i ①②③④	i ①②
	5. Reading Alphabet Lang. Development	Texts, Workbooks	○	T ①②③	T ①②③	T ①②③④	T ①②
		Lang. Experience Charts	○	A ①②③	A ①②③	A ①②③④	A ①②
		Tapes, Records, Films	○	V ①②③	V ①②③	V ①②③④	V ①②
		Games	○	i ①②③	i ①②③	i ①②③④	i ①②
D	6. Social Studies Geography	Texts, Workbooks	○	T ①②③	T ①②③	T ①②③④	T ①②
		Concrete Objects	○	A ①②③	A ①②③	A ①②③④	A ①②
		Symbolic Objects	○	V ①②③	V ①②③	V ①②③④	V ①②
		Films, Slides	○	i ①②③	i ①②③	i ①②③④	i ①②
	7. Science Natural World	Texts, Workbooks	○	T ①②③	T ①②③	T ①②③④	T ①②
		Plants, Animals	○	A ①②③	A ①②③	A ①②③④	A ①②
		Science Equipment	○	V ①②③	V ①②③	V ①②③④	V ①②
		Films, Slides	○	i ①②③	i ①②③	i ①②③④	i ①②
E	8. Guessing Games Table Games Puzzles	Teacher-Directed	○	T ①②③	T ①②③	T ①②③④	T ①②
		Child-Initiated	○	A ①②③	A ①②③	A ①②③④	A ①②
		Academic	○	V ①②③	V ①②③	V ①②③④	V ①②
		Non-Academic	○	i ①②③	i ①②③	i ①②③④	i ①②
F	9. Arts, Crafts	Painting	○	T ①②③	T ①②③	T ①②③④	T ①②
		Drawing	○	A ①②③	A ①②③	A ①②③④	A ①②
		Cut-And-Paste	○	V ①②③	V ①②③	V ①②③④	V ①②
		Sculpture/Clay	○	i ①②③	i ①②③	i ①②③④	i ①②
	10. Sewing Cooking Pounding Sawing			T ①②③	T ①②③	T ①②③④	T ①②
		Academic	○	A ①②③	A ①②③	A ①②③④	A ①②
		Non-Academic	○	V ①②③	V ①②③	V ①②③④	V ①②
				i ①②③	i ①②③	i ①②③④	i ①②
G	11. Blocks Trucks			T ①②③	T ①②③	T ①②③④	T ①②
				A ①②③	A ①②③	A ①②③④	A ①②
				V ①②③	V ①②③	V ①②③④	V ①②
				i ①②③	i ①②③	i ①②③④	i ①②
	12. Dolls Dress Up			T ①②③	T ①②③	T ①②③④	T ①②
				A ①②③	A ①②③	A ①②③④	A ①②
				V ①②③	V ①②③	V ①②③④	V ①②
				i ①②③	i ①②③	i ①②③④	i ①②
H	13. Active play			T ①②③	T ①②③	T ①②③④	T ①②
				A ①②③	A ①②③	A ①②③④	A ①②
				V ①②③	V ①②③	V ①②③④	V ①②
				i ①②③	i ①②③	i ①②③④	i ①②
	14. RELIABILITY SHEET		○				

		ONE CHILD	TWO CHILDREN	SMALL GROUPS	LARGE GROUPS
15. Transitional Activities (Washing Hands, Standing in Lines, Going to Bathroom, etc.)	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②
16. Classroom Management (Handing out Paper, Cleaning up, etc.)	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②
17. Out of Room	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②
18. Observing/Other	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②

NUMBER OF ADULTS IN CLASSROOM ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

FIVE–MINUTE OBSERVATION

REMINDERS

SIT, LOOK AND GET A FEEL FOR THE CLASSROOM!

TRY CODING MENTALLY. WHAT CODES DO YOU EXPECT TO USE IN ALL COLUMNS: Who, To Whom, What, and How. (Please code the appropriate adult - T,A,V - in the Who and To Whom columns.)

LOOK FOR COMPLETE INTERACTIONS – Stimulus and Response – AND DON'T FORGET THE HOW COLUMN!

REMEMBER TO RECORD MOVEMENT IN AND OUT OF GROUP BEING OBSERVED.

REMEMBER TO CODE CONCRETE – O – AND SYMBOLIC – Sy – OBJECTS IN THE HOW COLUMN WHEN APPROPRIATE.

ALWAYS REMEMBER TO FILL IN TIME STARTED AND TIME STOPPED.

REMEMBER TO CODE THE ACTIVITY OBSERVED AT THE BEGINNING AND CODE ANY ACTIVITY CHANGE AT THE END.

RE–CHECK YOUR FIVE–MINUTE–OBSERVATION AND MAKE SURE THAT ALL CIRCLES ARE FILLED IN!

PLEASE REMEMBER TO BE QUIET AND COURTEOUS WITH ALL ADULTS AND CHILDREN!

What's happening?

(Do not write outside this box)

Number of Children ①②ⓈⓁ

ADULT	Directing	Participating	Observing
Teacher	○	○	○
Assistant/Aide	○	○	○
Volunteer	○	○	○

FOR NCS USE ONLY
⓪⓪⓪⓪⓪
①①①①①
②②②②②
③③③③③
④④④④④
⑤⑤⑤⑤⑤
⑥⑥⑥⑥⑥
⑦⑦⑦⑦⑦
⑧⑧⑧⑧⑧
⑨⑨⑨⑨⑨

ACTIVITY	
1 ○	10 ○
2 ○	11 ○
3 ○	12 ○
4 ○	13 ○
5 ○	14 ○
6 ○	15 ○
7 ○	16 ○
8 ○	17 ○
9 ○	18 ○

Pupil Code
⓪⓪
①①
②②
③③
④④
⑤⑤
⑥⑥
⑦⑦
⑧⑧
⑨⑨

TIME STARTED

Hour	Minute	
⑧⑨⑩⑪⑫	⓪①②	⓪①②③④
①②③④⑤	③④⑤	⑤⑥⑦⑧⑨

1	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

2	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

3	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

4	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

5	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

6	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

7	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

8	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

9	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

10	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

11	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

12	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

13	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

14	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

15	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

16	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

17	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

18	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

19	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

20	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

21	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

22	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

23	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

24	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

25	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

26	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

27	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

28	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

29	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

30	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

31	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

32	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

33	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

34	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

35	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

36	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

37	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

38	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

39	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

40	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

41	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

42	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

43	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

44	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

45	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

46	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

47	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

48	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

49	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

50	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

51	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

52	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

53	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

54	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

55	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

56	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

57	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

58	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

59	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

60	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

61	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

62	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

63	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

64	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

65	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

66	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

67	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

68	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

69	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

70	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

71	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

72	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

73	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

74	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

75	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

76	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

ACTIVITY

1	2	3	4	5	6	7	8	9
○	○	○	○	○	○	○	○	○
10	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
○	○	○	○	○	○	○	○	○

TIME STOPPED

Hour	Minute	
8 9 10 11 12	0 1 2	0 1 2 3 4
1 2 3 4 5	3 4 5	5 6 7 8 9

SRI

CLASSROOM OBSERVATION PROCEDURE

CLASSROOM CHECK LIST (be sure to code **EVERYONE** in the class)

				ONE CHILD	TWO CHILDREN	SMALL GROUPS	LARGE GROUPS
A	1. Snack, lunch			T ① ② ③	T ① ② ③	T ① ② ③ ④	T ① ②
				A ① ② ③	A ① ② ③	A ① ② ③ ④	A ① ②
				V ① ② ③	V ① ② ③	V ① ② ③ ④	V ① ②
				i ① ② ③	i ① ② ③	i ① ② ③ ④	i ① ②
B	2. Group time	Planning	○	T ① ② ③	T ① ② ③	T ① ② ③ ④	T ① ②
		Sharing	○	A ① ② ③	A ① ② ③	A ① ② ③ ④	A ① ②
		Rest	○	V ① ② ③	V ① ② ③	V ① ② ③ ④	V ① ②
		TV	○	i ① ② ③	i ① ② ③	i ① ② ③ ④	i ① ②
	3. Story Singing Dancing	Records	○	T ① ② ③	T ① ② ③	T ① ② ③ ④	T ① ②
		Teacher-Directed	○	A ① ② ③	A ① ② ③	A ① ② ③ ④	A ① ②
		Child-Initiated	○	V ① ② ③	V ① ② ③	V ① ② ③ ④	V ① ②
				i ① ② ③	i ① ② ③	i ① ② ③ ④	i ① ②
C	4. Arithmetic Numbers Math	Texts, Workbooks	○	T ① ② ③	T ① ② ③	T ① ② ③ ④	T ① ②
		Concrete Objects	○	A ① ② ③	A ① ② ③	A ① ② ③ ④	A ① ②
		Films, Slides	○	V ① ② ③	V ① ② ③	V ① ② ③ ④	V ① ②
		Games	○	i ① ② ③	i ① ② ③	i ① ② ③ ④	i ① ②
	5. Reading Alphabet Lang. Development	Texts, Workbooks	○	T ① ② ③	T ① ② ③	T ① ② ③ ④	T ① ②
		Lang. Experience Charts	○	A ① ② ③	A ① ② ③	A ① ② ③ ④	A ① ②
		Tapes, Records, Films	○	V ① ② ③	V ① ② ③	V ① ② ③ ④	V ① ②
		Games	○	i ① ② ③	i ① ② ③	i ① ② ③ ④	i ① ②
D	6. Social Studies Geography	Texts, Workbooks	○	T ① ② ③	T ① ② ③	T ① ② ③ ④	T ① ②
		Concrete Objects	○	A ① ② ③	A ① ② ③	A ① ② ③ ④	A ① ②
		Symbolic Objects	○	V ① ② ③	V ① ② ③	V ① ② ③ ④	V ① ②
		Films, Slides	○	i ① ② ③	i ① ② ③	i ① ② ③ ④	i ① ②
	7. Science Natural World	Texts, Workbooks	○	T ① ② ③	T ① ② ③	T ① ② ③ ④	T ① ②
		Plants, Animals	○	A ① ② ③	A ① ② ③	A ① ② ③ ④	A ① ②
		Science Equipment	○	V ① ② ③	V ① ② ③	V ① ② ③ ④	V ① ②
		Films, Slides	○	i ① ② ③	i ① ② ③	i ① ② ③ ④	i ① ②
E	8. Guessing Games Table Games Puzzles	Teacher-Directed	○	T ① ② ③	T ① ② ③	T ① ② ③ ④	T ① ②
		Child-Initiated	○	A ① ② ③	A ① ② ③	A ① ② ③ ④	A ① ②
		Academic	○	V ① ② ③	V ① ② ③	V ① ② ③ ④	V ① ②
		Non-Academic	○	i ① ② ③	i ① ② ③	i ① ② ③ ④	i ① ②
F	9. Arts, Crafts	Painting	○	T ① ② ③	T ① ② ③	T ① ② ③ ④	T ① ②
		Drawing	○	A ① ② ③	A ① ② ③	A ① ② ③ ④	A ① ②
		Cut-And-Paste	○	V ① ② ③	V ① ② ③	V ① ② ③ ④	V ① ②
		Sculpture/Clay	○	i ① ② ③	i ① ② ③	i ① ② ③ ④	i ① ②
	10. Sewing Cooking Pounding Sawing			T ① ② ③	T ① ② ③	T ① ② ③ ④	T ① ②
		Academic	○	A ① ② ③	A ① ② ③	A ① ② ③ ④	A ① ②
		Non-Academic	○	V ① ② ③	V ① ② ③	V ① ② ③ ④	V ① ②
				i ① ② ③	i ① ② ③	i ① ② ③ ④	i ① ②
G	11. Blocks Trucks			T ① ② ③	T ① ② ③	T ① ② ③ ④	T ① ②
				A ① ② ③	A ① ② ③	A ① ② ③ ④	A ① ②
				V ① ② ③	V ① ② ③	V ① ② ③ ④	V ① ②
				i ① ② ③	i ① ② ③	i ① ② ③ ④	i ① ②
	12. Dolls Dress Up			T ① ② ③	T ① ② ③	T ① ② ③ ④	T ① ②
				A ① ② ③	A ① ② ③	A ① ② ③ ④	A ① ②
				V ① ② ③	V ① ② ③	V ① ② ③ ④	V ① ②
				i ① ② ③	i ① ② ③	i ① ② ③ ④	i ① ②
H	13. Active play			T ① ② ③	T ① ② ③	T ① ② ③ ④	T ① ②
				A ① ② ③	A ① ② ③	A ① ② ③ ④	A ① ②
				V ① ② ③	V ① ② ③	V ① ② ③ ④	V ① ②
				i ① ② ③	i ① ② ③	i ① ② ③ ④	i ① ②

14. RELIABILITY SHEET ○

		ONE CHILD	TWO CHILDREN	SMALL GROUPS	LARGE GROUPS
15. Transitional Activities (Washing Hands, Standing in Lines, Going to Bathroom, etc.)	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②
16. Classroom Management (Handing out Paper, Cleaning up, etc.)	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②
17. Out of Room	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②
18. Observing/Other	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②

NUMBER OF ADULTS IN CLASSROOM ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

FIVE–MINUTE OBSERVATION

REMINDERS

SIT, LOOK AND GET A FEEL FOR THE CLASSROOM!

TRY CODING MENTALLY. WHAT CODES DO YOU EXPECT TO USE IN ALL COLUMNS: Who, To Whom, What, and How. (Please code the appropriate adult - T,A,V - in the Who and To Whom columns.)

LOOK FOR COMPLETE INTERACTIONS – Stimulus and Response – AND DON'T FORGET THE HOW COLUMN!

REMEMBER TO RECORD MOVEMENT IN AND OUT OF GROUP BEING OBSERVED.

REMEMBER TO CODE CONCRETE – O – AND SYMBOLIC – Sy – OBJECTS IN THE HOW COLUMN WHEN APPROPRIATE.

ALWAYS REMEMBER TO FILL IN TIME STARTED AND TIME STOPPED.

REMEMBER TO CODE THE ACTIVITY OBSERVED AT THE BEGINNING AND CODE ANY ACTIVITY CHANGE AT THE END.

RE–CHECK YOUR FIVE–MINUTE–OBSERVATION AND MAKE SURE THAT ALL CIRCLES ARE FILLED IN!

PLEASE REMEMBER TO BE QUIET AND COURTEOUS WITH ALL ADULTS AND CHILDREN!

What's happening? →

(Do not write outside this box)

Number of Children ①②Ⓢ Ⓛ

ADULT	Directing	Participating	Observing
Teacher	○	○	○
Assistant/Aide	○	○	○
Volunteer	○	○	○

FOR NCS USE ONLY
⓪⓪⓪⓪⓪
①①①①①
②②②②②
③③③③③
④④④④④
⑤⑤⑤⑤⑤
⑥⑥⑥⑥⑥
⑦⑦⑦⑦⑦
⑧⑧⑧⑧⑧
⑨⑨⑨⑨⑨

ACTIVITY	
1 ○	10 ○
2 ○	11 ○
3 ○	12 ○
4 ○	13 ○
5 ○	14 ○
6 ○	15 ○
7 ○	16 ○
8 ○	17 ○
9 ○	18 ○

Pupil Code
⓪⓪
①①
②②
③③
④④
⑤⑤
⑥⑥
⑦⑦
⑧⑧
⑨⑨

TIME STARTED		
Hour	Minute	
⑧⑨⑩⑪⑫	⓪①②	⓪①②③④
①②③④⑤	③④⑤	⑤⑥⑦⑧⑨

1	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

2	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

3	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

4	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

5	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

6	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

7	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

8	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

9	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

10	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

11	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

12	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

13	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

14	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

15	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

16	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

17	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

18	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

19	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

20	Who	To Whom	What	How
	R T A V	T A V	1 2 3 4 5	+ − A T
	S C D 2	C D 2	6 7 8 9 10	G R C Q F P
	C S L E M	S L E M	11 12 NV X	L S I Sv O

21	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

22	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

23	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

24	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

25	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

26	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

27	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

28	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

29	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

30	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

31	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

32	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

33	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

34	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

35	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

36	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

37	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

38	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

39	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

40	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

41	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

42	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

43	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

44	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

45	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

46	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

47	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

48	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

49	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

50	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

51	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

52	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

53	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

54	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

55	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

56	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

57	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

58	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

59	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

60	Who	To Whom	What	How
Ⓡ	Ⓣ Ⓐ Ⓥ	Ⓣ Ⓐ Ⓥ	① ② ③ ④ ⑤	⊕ ⊖ Ⓐ Ⓣ
Ⓢ	Ⓒ Ⓓ ②	Ⓒ Ⓓ ②	⑥ ⑦ ⑧ ⑨ ⑩	Ⓖ Ⓡ Ⓒ Ⓠ Ⓕ Ⓟ
Ⓒ	Ⓢ Ⓛ Ⓔ Ⓜ	Ⓢ Ⓛ Ⓔ Ⓜ	⑪ ⑫ (NV) Ⓧ	Ⓛ Ⓢ Ⓘ (Sy) Ⓞ

61	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

62	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

63	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

64	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

65	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

66	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

67	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

68	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

69	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S C Sy O

70	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

71	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

72	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

73	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

74	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

75	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

76	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

TIME STOPPED

Hour	Minute	
8 9 10 11 12	0 1 2	0 1 2 3 4
1 2 3 4 5	3 4 5	5 6 7 8 9

ACTIVITY

1	2	3	4	5	6	7	8	9
○	○	○	○	○	○	○	○	○
10	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
○	○	○	○	○	○	○	○	○

CLASSROOM OBSERVATION PROCEDURE

CLASSROOM CHECK LIST (be sure to code **EVERYONE** in the class)

				ONE CHILD	TWO CHILDREN	SMALL GROUPS	LARGE GROUPS
A	1. Snack, Lunch			T ①②③	T ①②③	T ①②③④	T ①②
				A ①②③	A ①②③	A ①②③④	A ①②
				V ①②③	V ①②③	V ①②③④	V ①②
				i ①②③	i ①②③	i ①②③④	i ①②
B	2. Group time	Planning	○	T ①②③	T ①②③	T ①②③④	T ①②
		Sharing	○	A ①②③	A ①②③	A ①②③④	A ①②
		Rest	○	V ①②③	V ①②③	V ①②③④	V ①②
		TV	○	i ①②③	i ①②③	i ①②③④	i ①②
	3. Story Singing Dancing	Records	○	T ①②③	T ①②③	T ①②③④	T ①②
		Teacher-Directed	○	A ①②③	A ①②③	A ①②③④	A ①②
		Child-Initiated	○	V ①②③	V ①②③	V ①②③④	V ①②
				i ①②③	i ①②③	i ①②③④	i ①②
C	4. Arithmetic Numbers Math	Texts, Workbooks	○	T ①②③	T ①②③	T ①②③④	T ①②
		Concrete Objects	○	A ①②③	A ①②③	A ①②③④	A ①②
		Films, Slides	○	V ①②③	V ①②③	V ①②③④	V ①②
		Games	○	i ①②③	i ①②③	i ①②③④	i ①②
	5. Reading Alphabet Lang. Development	Texts, Workbooks	○	T ①②③	T ①②③	T ①②③④	T ①②
		Lang. Experience Charts	○	A ①②③	A ①②③	A ①②③④	A ①②
		Tapes, Records, Films	○	V ①②③	V ①②③	V ①②③④	V ①②
		Games	○	i ①②③	i ①②③	i ①②③④	i ①②
D	6. Social Studies Geography	Texts, Workbooks	○	T ①②③	T ①②③	T ①②③④	T ①②
		Concrete Objects	○	A ①②③	A ①②③	A ①②③④	A ①②
		Symbolic Objects	○	V ①②③	V ①②③	V ①②③④	V ①②
		Films, Slides	○	i ①②③	i ①②③	i ①②③④	i ①②
	7. Science Natural World	Texts, Workbooks	○	T ①②③	T ①②③	T ①②③④	T ①②
		Plants, Animals	○	A ①②③	A ①②③	A ①②③④	A ①②
		Science Equipment	○	V ①②③	V ①②③	V ①②③④	V ①②
		Films, Slides	○	i ①②③	i ①②③	i ①②③④	i ①②
E	8. Guessing Games Table Games Puzzles	Teacher-Directed	○	T ①②③	T ①②③	T ①②③④	T ①②
		Child-Initiated	○	A ①②③	A ①②③	A ①②③④	A ①②
		Academic	○	V ①②③	V ①②③	V ①②③④	V ①②
		Non-Academic	○	i ①②③	i ①②③	i ①②③④	i ①②
F	9. Arts, Crafts	Painting	○	T ①②③	T ①②③	T ①②③④	T ①②
		Drawing	○	A ①②③	A ①②③	A ①②③④	A ①②
		Cut-And-Paste	○	V ①②③	V ①②③	V ①②③④	V ①②
		Sculpture/Clay	○	i ①②③	i ①②③	i ①②③④	i ①②
	10. Sewing Cooking Pounding Sawing			T ①②③	T ①②③	T ①②③④	T ①②
		Academic	○	A ①②③	A ①②③	A ①②③④	A ①②
		Non-Academic	○	V ①②③	V ①②③	V ①②③④	V ①②
				i ①②③	i ①②③	i ①②③④	i ①②
G	11. Blocks Trucks			T ①②③	T ①②③	T ①②③④	T ①②
				A ①②③	A ①②③	A ①②③④	A ①②
				V ①②③	V ①②③	V ①②③④	V ①②
				i ①②③	i ①②③	i ①②③④	i ①②
	12. Dolls Dress Up			T ①②③	T ①②③	T ①②③④	T ①②
				A ①②③	A ①②③	A ①②③④	A ①②
				V ①②③	V ①②③	V ①②③④	V ①②
				i ①②③	i ①②③	i ①②③④	i ①②
H	13. Active play			T ①②③	T ①②③	T ①②③④	T ①②
				A ①②③	A ①②③	A ①②③④	A ①②
				V ①②③	V ①②③	V ①②③④	V ①②
				i ①②③	i ①②③	i ①②③④	i ①②
	14. RELIABILITY SHEET		○				

		ONE CHILD	TWO CHILDREN	SMALL GROUPS	LARGE GROUPS
15. Transitional Activities (Washing Hands, Standing in Lines, Going to Bathroom, etc.)	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②
16. Classroom Management (Handing out Paper, Cleaning up, etc.)	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②
17. Out of Room	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②
18. Observing/Other	Ⓣ	T ①②③	T ①②③	T ①②③④	T ①②
	Ⓐ	A ①②③	A ①②③	A ①②③④	A ①②
	Ⓥ	V ①②③	V ①②③	V ①②③④	V ①②
		i ①②③	i ①②③	i ①②③④	i ①②

NUMBER OF ADULTS IN CLASSROOM ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

FIVE–MINUTE OBSERVATION

REMINDERS

SIT, LOOK AND GET A FEEL FOR THE CLASSROOM!

TRY CODING MENTALLY. WHAT CODES DO YOU EXPECT TO USE IN ALL COLUMNS: Who, To Whom, What, and How. (Please code the appropriate adult - T,A,V - in the Who and To Whom columns.)

LOOK FOR COMPLETE INTERACTIONS – Stimulus and Response – AND DON'T FORGET THE HOW COLUMN!

REMEMBER TO RECORD MOVEMENT IN AND OUT OF GROUP BEING OBSERVED.

REMEMBER TO CODE CONCRETE – O – AND SYMBOLIC – Sy – OBJECTS IN THE HOW COLUMN WHEN APPROPRIATE.

ALWAYS REMEMBER TO FILL IN TIME STARTED AND TIME STOPPED.

REMEMBER TO CODE THE ACTIVITY OBSERVED AT THE BEGINNING AND CODE ANY ACTIVITY CHANGE AT THE END.

RE–CHECK YOUR FIVE–MINUTE–OBSERVATION AND MAKE SURE THAT ALL CIRCLES ARE FILLED IN!

PLEASE REMEMBER TO BE QUIET AND COURTEOUS WITH ALL ADULTS AND CHILDREN!

What's happening?

(Do not write outside this box)

Number of Children ①②ⓈⓁ

ADULT	Directing	Participating	Observing
Teacher	○	○	○
Assistant/Aide	○	○	○
Volunteer	○	○	○

FOR NCS USE ONLY
⓪⓪⓪⓪⓪
①①①①①
②②②②②
③③③③③
④④④④④
⑤⑤⑤⑤⑤
⑥⑥⑥⑥⑥
⑦⑦⑦⑦⑦
⑧⑧⑧⑧⑧
⑨⑨⑨⑨⑨

ACTIVITY	
1 ○	10 ○
2 ○	11 ○
3 ○	12 ○
4 ○	13 ○
5 ○	14 ○
6 ○	15 ○
7 ○	16 ○
8 ○	17 ○
9 ○	18 ○

Pupil Code
⓪⓪
①①
②②
③③
④④
⑤⑤
⑥⑥
⑦⑦
⑧⑧
⑨⑨

TIME STARTED

Hour	Minute	
⑧⑨⑩⑪⑫	⓪①②	⓪①②③④
①②③④⑤	③④⑤	⑤⑥⑦⑧⑨

1	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

2	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

3	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

4	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

5	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

6	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

7	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

8	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

9	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

10	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

11	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

12	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

13	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

14	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

15	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

16	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

17	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

18	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

19	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

20	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sv O

21	Who	To Whom	What	How
R S C	T A V C D 2 S L E M	T A V C D 2 S L E M	1 2 3 4 5 6 7 8 9 10 11 12 NV X	+ − A T G R C Q F P L S I Sv O

22	Who	To Whom	What	How
R S C	T A V C D 2 S L E M	T A V C D 2 S L E M	1 2 3 4 5 6 7 8 9 10 11 12 NV X	+ − A T G R C Q F P L S I Sv O

23	Who	To Whom	What	How
R S C	T A V C D 2 S L E M	T A V C D 2 S L E M	1 2 3 4 5 6 7 8 9 10 11 12 NV X	+ − A T G R C Q F P L S I Sv O

24	Who	To Whom	What	How
R S C	T A V C D 2 S L E M	T A V C D 2 S L E M	1 2 3 4 5 6 7 8 9 10 11 12 NV X	+ − A T G R C Q F P L S I Sv O

25	Who	To Whom	What	How
R S C	T A V C D 2 S L E M	T A V C D 2 S L E M	1 2 3 4 5 6 7 8 9 10 11 12 NV X	+ − A T G R C Q F P L S I Sv O

26	Who	To Whom	What	How
R S C	T A V C D 2 S L E M	T A V C D 2 S L E M	1 2 3 4 5 6 7 8 9 10 11 12 NV X	+ − A T G R C Q F P L S I Sv O

27	Who	To Whom	What	How
R S C	T A V C D 2 S L E M	T A V C D 2 S L E M	1 2 3 4 5 6 7 8 9 10 11 12 NV X	+ − A T G R C Q F P L S I Sv O

28	Who	To Whom	What	How
R S C	T A V C D 2 S L E M	T A V C D 2 S L E M	1 2 3 4 5 6 7 8 9 10 11 12 NV X	+ − A T G R C Q F P L S I Sv O

29	Who	To Whom	What	How
R S C	T A V C D 2 S L E M	T A V C D 2 S L E M	1 2 3 4 5 6 7 8 9 10 11 12 NV X	+ − A T G R C Q F P L S I Sv O

30	Who	To Whom	What	How
R S C	T A V C D 2 S L E M	T A V C D 2 S L E M	1 2 3 4 5 6 7 8 9 10 11 12 NV X	+ − A T G R C Q F P L S I Sv O

31	Who	To Whom	What	How
R S C	T A V C D 2 S L E M	T A V C D 2 S L E M	1 2 3 4 5 6 7 8 9 10 11 12 NV X	+ − A T G R C Q F P L S I Sv O

32	Who	To Whom	What	How
R S C	T A V C D 2 S L E M	T A V C D 2 S L E M	1 2 3 4 5 6 7 8 9 10 11 12 NV X	+ − A T G R C Q F P L S I Sv O

33	Who	To Whom	What	How
R S C	T A V C D 2 S L E M	T A V C D 2 S L E M	1 2 3 4 5 6 7 8 9 10 11 12 NV X	+ − A T G R C Q F P L S I Sv O

34	Who	To Whom	What	How
R S C	T A V C D 2 S L E M	T A V C D 2 S L E M	1 2 3 4 5 6 7 8 9 10 11 12 NV X	+ − A T G R C Q F P L S I Sv O

35	Who	To Whom	What	How
R S C	T A V C D 2 S L E M	T A V C D 2 S L E M	1 2 3 4 5 6 7 8 9 10 11 12 NV X	+ − A T G R C Q F P L S I Sv O

36	Who	To Whom	What	How
R S C	T A V C D 2 S L E M	T A V C D 2 S L E M	1 2 3 4 5 6 7 8 9 10 11 12 NV X	+ − A T G R C Q F P L S I Sv O

37	Who	To Whom	What	How
R S C	T A V C D 2 S L E M	T A V C D 2 S L E M	1 2 3 4 5 6 7 8 9 10 11 12 NV X	+ − A T G R C Q F P L S I Sv O

38	Who	To Whom	What	How
R S C	T A V C D 2 S L E M	T A V C D 2 S L E M	1 2 3 4 5 6 7 8 9 10 11 12 NV X	+ − A T G R C Q F P L S I Sv O

39	Who	To Whom	What	How
R S C	T A V C D 2 S L E M	T A V C D 2 S L E M	1 2 3 4 5 6 7 8 9 10 11 12 NV X	+ − A T G R C Q F P L S I Sv O

40	Who	To Whom	What	How
R S C	T A V C D 2 S L E M	T A V C D 2 S L E M	1 2 3 4 5 6 7 8 9 10 11 12 NV X	+ − A T G R C Q F P L S I Sv O

41	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

42	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

43	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

44	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

45	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

46	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

47	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

48	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

49	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

50	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

51	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

52	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

53	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

54	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

55	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

56	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

57	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

58	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

59	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

60	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

61	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

62	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

63	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

64	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

65	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

66	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

67	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

68	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

69	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

70	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

71	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

72	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

73	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

74	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

75	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

76	Who	To Whom	What	How
R	T A V	T A V	1 2 3 4 5	+ − A T
S	C D 2	C D 2	6 7 8 9 10	G R C Q F P
C	S L E M	S L E M	11 12 NV X	L S I Sy O

TIME STOPPED

Hour	Minute	
8 9 10 11 12	0 1 2	0 1 2 3 4
1 2 3 4 5	3 4 5	5 6 7 8 9

ACTIVITY

1	2	3	4	5	6	7	8	9
○	○	○	○	○	○	○	○	○
10	11	12	13	14	15	16	17	18
○	○	○	○	○	○	○	○	○

Appendix J

FINDINGS REGARDING DIFFERENCES BY GRADE LEVELS AND ACTIVITIES WITHIN SPONSOR

Appendix J

FINDINGS REGARDING DIFFERENCES BY GRADE LEVELS AND ACTIVITIES WITHIN SPONSOR

FMO variables have been analyzed to detect grade level differences within sponsors. Such differences may reflect either the way a sponsor tailors his program to the developmental stages of children or the behavioral differences in children due to age differences. In the latter case, the grade level differences should tend to appear across sponsors.

The important questions are:

- What types of interactions characterized different activities?
- How do comparisons of sponsors on FMO variables within a given activity relate to the comparisons of sponsors on these FMO variables over all activities?

The latter question is especially relevant to the two formal academic activities of Activity 4 (arithmetic, numbers, math) and Activity 5 (reading, alphabet, language development). Sponsor classrooms differed considerably in the frequency with which one or more children are engaged in these two activities (see Appendix L). Differences among sponsors may disappear when the analysis is predicated on a single activity. On the other hand, differences may appear in the activity-specific analysis that were not apparent in the overall analysis.

The 17 types of activities listed on the CCL are listed at the beginning and the end of each FMO. The observers were instructed to indicate the activity in which the focus of observation was engaged at the beginning and, if the activity changed, at the end of each FMO. For this analysis, the activities were partitioned into four categories:

Category 1:	Arithmetic, numbers, math (Activity 4)
Category 2:	Reading, alphabet, language development (Activity 5)
Category 3:	Broad activities (Activities 2, 3, 6 through 12)
Category 4:	Snack, lunch, other activities 1, 13, 15 through 18).

Activity Categories 1 and 2 capture the activities occurring when the focus of observation was engaged in the traditional academic subjects most directly related to achievement tests. Category 3 captures the other activities having some academic content but organized around more diverting subject matter. Category 4 captures the remaining activities, those having marginal academic content.

For each sponsor and grade level the FMOs were partitioned by beginning activity. Table J-1 gives the percentage of FMOs falling in each activity category for each sponsor and grade level for adult- and child-focused data separately. The total number of FMOs is also tabulated for each focus. The table reveals that sponsors differ markedly in the nature of activities on which the observed classroom time was spent. For example, the range of time spent on Category 2 (reading and other language skills) is from 26 to 63 percent for adult focus observations in Second Grade. For some sponsors, especially those with Kindergartens, the range among grade levels is also considerable. An outstanding example is Category 2 for U. Pittsburgh: The range among grade levels is from 9 percent for Kindergarten to 45 percent for First Grade.* The variation among sponsors and grades in the distribution of FMOs is not surprising, since the observation procedure was not designed to minimize such variation. The observation procedure emphasized the rate at which COPs were to be completed and who was to be observed rather than the ongoing activity (see Chapter II).

FMOs have been classified by the activity category in which the focus of observation was engaged at the beginning of the FMO. See Table J-2, which contains the frequency and percentage of FMOs where the coding activity was not the same as the beginning activity.

For the sponsors with a high percentage of change in activity during FMOs--Far West Lab, U. Arizona, and ILM--the description of the process in a given activity may be distorted.

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*This may be attributable in part to the fact that the observers had not been trained to distinguish the prereading exercises used by U. Pittsburgh, and reading may have occurred more frequently than it was recorded by the observers.

Table J-1

PERCENTAGE OF FMOs IN ACTIVITY CATEGORIES BY FOCUS, EPISODE, SPONSOR & GRADE
(At beginning of FMO)

		Adult Focus					Child Focus				
		Activity Category				Total	Activity Category				Total
Sponsor	Grade	1*	2+	3	4	Frequency	1*	2+	3	4	Frequency
FW	K	9	39	26	26	129	5	14	66	15	128
	1	11	42	33	14	149	25	29	35	14	129
	2	13	32	39	15	127	18	36	32	14	132
UA	1	8	40	43	9	159	10	34	53	3	128
	2	11	31	34	24	160	4	31	56	9	127
	3	11	28	41	20	158	12	30	47	11	128
BC	1	13	52	25	9	141	15	48	29	9	124
	2	24	47	18	10	157	34	45	19	2	128
	3	20	42	28	10	143	24	40	35	2	127
UG	1	18	49	23	10	158	25	39	29	6	127
	2	23	46	22	9	160	28	55	16	1	128
	3	26	46	22	6	141	22	47	26	5	128
UO	1	39	52	2	8	159	26	59	9	5	128
	2	19	63	5	13	160	29	62	7	2	128
	3	18	72	2	8	160	32	57	4	7	128
UK	K	19	54	14	14	145	21	58	17	4	126
	1	14	63	12	11	120	21	63	14	2	97
	2	16	52	11	20	116	11	73	13	3	96
HS	K	6	11	59	24	141	6	25	51	18	127
(1/ek)	1	16	22	50	12	153	12	20	52	16	128
	2	19	26	41	14	160	18	23	50	9	128
	3	17	32	41	10	155	15	36	41	8	128
UF	1	18	39	28	14	120	30	50	20	0	96
	2	29	51	15	6	160	27	52	21	0	128
	3	16	49	26	9	160	20	46	33	1	127
	M	24	19	46	11	37	19	32	45	3	31
ED	K	20	22	21	36	113	6	14	35	46	123
	1	14	36	21	29	140	17	30	33	20	128
	2	16	36	12	36	144	15	32	36	17	128
UP	K	40	9	37	14	117	35	7	44	15	130
	1	34	45	16	5	146	30	41	27	3	128
	2	26	39	28	7	152	30	42	23	5	128
IL	K	10	30	37	24	152	7	27	55	12	128
	1	12	53	25	9	178	18	43	30	9	128
	2	13	59	18	10	160	14	58	22	6	128
SE	K	10	23	29	39	135	6	26	36	31	124
	1	17	43	21	19	136	12	56	16	16	122
	2	11	45	19	25	157	14	32	34	21	125
NFT	K	10	18	46	26	502	9	17	53	21	462
	EF	17	49	22	12	398	16	56	25	3	314
	NEF	12	42	30	16	425	20	45	24	11	365
	2	14	50	20	16	819	16	50	26	8	668
	3	16	52	18	14	399	21	49	23	8	306
	M	20	50	21	9	256	25	43	24	8	213

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*Math.

+Language.

Table J-2

FMOs WHERE ACTIVITY CATEGORY CHANGED BY SPONSOR

Sponsor	Adult Focus		Child Focus	
	Number of FMOs with Change	Percentage of FMOs with Change	Number of FMOs with Change	Percentage of FMOs with Change
FW	78	20%	108	26%
UA	147	38	82	17
BC	50	13	25	5
UG	77	20	39	8
UO	59	15	62	13
UK	47	15	19	5
HS	104	20	117	19
UF	46	12	25	5
ED	68	18	44	11
UP	59	15	58	14
IL	91	24	66	13
SE	79	21	82	19
NFT	440	19	308	11
Total	1,345	16%	1,035	16%

Comparison of Grade Levels within Sponsor and Activity Category

To compare the distribution of FMOs among grade levels, X^2 and CATANOVA statistics were computed for each FMO variable on a grade level by variable contingency table within each sponsor, grade level, and focus combination. (See Appendix R for discussion of the CATANOVA.) Table J-3 lists the partition of the range for each variable necessary for the X^2 and CATANOVA procedures. The FMO served as the unit of analysis, and FMOs were pooled over classrooms within grade level. Some activity categories were excluded, because the number of FMOs per grade level was too small. The criterion for including an activity category was that at least two grade levels had 20 FMOs or more observed in it.

Table J-4 gives the number of variables for each sponsor, activity category, and focus combination where the CATANOVA R^2 was greater than or equal to .08. (See Chapter VI for an explanation of the choice of this criterion.) The cells with an asterisk are those excluded. (See Table IV-1 for the grade levels at which each sponsor had classes.) No

Table J-3

SPECIFICATION OF PARTITION OF RANGE FOR FMO VARIABLES

Child Focus

High Frequency Variables			Partition
7	43	57	0; 1-3; 4-6; 7-9; 10+*
23	44	64	
24	45	71	
29	47	81	
31	48	116	
42			

Medium Frequency Variables			Partition
1	35	77	0; 1-3; 4-6; 7+
2	50	78	
5	61	82	
6	65	104	
8	66	109	
9	73	117	
19	74	118	
20			

Low Frequency Variables	Partition
All Others	0; 1; 2+

Adult Focus

High Frequency Variables			Partition
1	69	86	0; 1-3; 4-6; 7-9; 10+
19	71	87	
20	73	104	
57	74	108	
61	75	116	
63	76	117	
64	81	118	
65	82	120	
66			

Medium Frequency Variables			Partition
2	78	93	0; 1-3; 4-6; 7+
3	80	97	
47	88	99	
48	93	100	
77			

Low Frequency Variables	Partition
All Others	0; 1; 2+

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[*] A plus beside a digit indicates that all COPs with that many or more occurrences go in that category.

Table J-4

NUMBER OF VARIABLES WHERE MAJOR DIFFERENCES[*] WERE FOUND AMONG GRADE LEVELS ON FMO VARIABLES[†]

		Adult Focus				Child Focus			
		Activity Category				Activity Category			
Sponsor	Grade	1	2	3	4	1	2	3	4
FW	K	‡	14	4	8	12	6	4	‡
UA	1/ef	‡	10	7	18	‡	5	7	‡
BC	1/ef	8	1	1	‡	8	1	9	‡
UG	1/ef	11	2	10	‡	5	4	5	‡
UO	1/ef	15	4	‡	‡	10	6	‡	‡
UK	K	‡	0	‡	30	18	0	‡	‡
HS	K/1/ef	10	15	1	16	‡	17	2	‡
UF	1/ef,M	20	4	5	‡	24	9	12	‡
ED	K	14	3	7	10	‡	3	3	4
UP	K	5	12	2	‡	4	12	6	‡
IL	K	26	7	1	‡	‡	4	0	‡
SE	K	‡	9	11	10	‡	5	8	12

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[*] $R^2 \geq .08$.

[†] There are a total of 120 FMO variables.

[‡] Omitted because too few FMOs.

individual sponsor stands out from the others as having substantially more important differences among grade levels over all activity categories. Six out of the eight sponsors where math activity (Activity Category 1) was included in the analysis for adult focus had more differences in that category than in any of the other categories.

On the basis of the R^2 criterion, no particular variable emerged as a discriminator of grade level differences across sponsors and activity categories.

Within the constraints of space and emphasis it was impossible to investigate all the grade differences. Only a cursory inspection of a subset of the data could be made. For this purpose, 11 FMO variables were selected for further investigation. Only Activity Category 2 (reading, alphabet, language development) was considered. It was chosen over the other activity categories because it was the only one for which an adequate number of FMOs was available for all sponsors. The variables chosen for each focus were:

Adult Focus

- Adult asking direct question of children (FMO-78[a]).
- Adult instructing children (FMO-81[a]).
- Adult praising children in task-related activity (FMO-89[a]).
- Adult giving task-related acknowledgment to children (FMO-93[a]).
- Adult giving children corrective feedback in task-related activity (FMO-100[a]).
- Adult attentive to children (FMO-108[a]).

Child Focus

- Child initiating interaction with an adult (FMO-2[c]).
- Child initiating interaction with different child (FMO-8[c]).
- Child asking direct question (FMO-16[c]).
- Child instructing self (FMO-23[c]).
- Child attentive to adult (FMO-45[c]).

The mean frequencies for each of the 11 variables by sponsor and grade level are given in Table J-9. Note that the rate of variable occurrence was computed on a conditional basis, the condition being that the focus of observation was engaged in reading, alphabet, or language development at the beginning of the FMO. Any statement in this section that concerns the mean frequencies has an implied initial clause: "When reading, alphabet, or language development was occurring and when the adult or child who was the focus of observation was involved...."

One result of this conditional aspect of the data is that the adult-focused and child-focused data complement each other and are not directly compatible, since they were taken under different conditions. The other differences that emerge are sponsor specific. What follows is a summary of grade differences on the selected variables by sponsor.

Far West Lab

Although at all grades the frequency of corrective feedback was low, adults gave children five to six times more corrective feedback in the upper two grades than in the Kindergarten.

Children asked questions more frequently in the upper two grades than in Kindergarten, although they instructed themselves about twice as much.

U. Arizona

No outstanding differences appear on adult-focused data.

On the child-focused data, there is a definite decrease with increasing grade level in the frequency with which children initiated interactions with an adult. No other differences are evident.

Bank Street

A definite trend toward more acknowledgment in task-related activities can be seen with increasing grade level. Adults gave Second Graders about twice as much corrective feedback in task-related activities as they gave children in other grades. Adults were more frequently attentive to children in the upper two grades. This is another indication that children were working independent of adults.

The child-focused data show a moderate trend toward "child instructing self" more often in the upper grade levels.

U. Georgia

Adults gave children corrective feedback much less often in Third Grade than in the lower two grades.

With increasing grade levels a definite trend can be seen toward more self-instruction by children. In the Third Grades children were found attending to adults much less often than in the lower two grades.

U. Oregon

A moderate trend toward more question asking and instruction appears for the upper grade levels. Third Graders received about half as much praise in task-related activities as did children in the two lower grades. On the other hand, the children in the upper two grades received about twice as much corrective feedback in task-related activities.

A definite trend toward more self-instruction appears with increasing grade level. Children in the third grade attended to adults a little less often than did children in the lower grades.

U. Kansas

The adults in Kindergarten asked more questions than did those in the upper two grades. On the other hand, the adults in the upper two grades gave attention to children two or three times more often than did those in Kindergarten. Second Grade children tended to instruct themselves more often than did children in the lower two grades.

High/Scope

A slight trend can be seen for adults to give less task-related acknowledgment and more corrective feedback with increasing grade levels. Adults attended to children more often in the upper grade levels than in the two lower grade levels.

Children in Third Grade tended to ask more questions than did children in the lower grade levels. Although the frequency of self-instruction is comparatively low across grade levels, it tends to be higher with increasing grade level.

U. Florida

One U. Florida classroom was classified as mixed, because it contained both First and Second Graders. For this analysis it was considered as belonging to a separate grade level.

Adults instructed children more often in the First Grade than at the upper grade levels. Adults gave more task-related praise and acknowledgment in the lower two grades than in the Third. Adults in Second Grade gave attention to children about a third as often as in the other two regular grade levels and half as often as in the mixed classroom.

The Second Grade level also stands out in terms of the mean frequency of children's direct questions (the rate being at least twice that for the other grade levels) and the frequency of children attending to adults (the rate being less than half that for the other grade levels). Children instructed themselves less often in Third Grade than in the lower two grade levels. The rate of self-instruction for the mixed classroom was about half that for the other grades.

EDC

The adults in the first grade were attentive to children at a frequency about a third the rate for the other grade levels.

The frequency of children initiating interactions with an adult is much lower for the First Grade than for the upper grades. A definite trend toward more self-instruction can be seen with increasing grade level. On the other hand, the frequency of children attending to adults was much greater for Kindergarten than for the upper two grade levels.

U. Pittsburgh

The difference in the number of FMOs included under Activity Category 2 should be kept in mind. For both the adult- and the child-focused data, the number of FMOs for Kindergarten is about a fifth that of either of the upper two grade levels. The estimates of mean frequency for Kindergarten may therefore be extremely unreliable. Given this caveat, what are the differences among grade levels?

For the adult-focused observations, two complementary trends are evident: a decrease in the mean frequency of adult task-related praise and an increase in the mean frequency of adult task-related acknowledgment to children, with increasing grade level.

Children initiated interactions with other children about three times more often in Kindergarten than in the upper two grades. On the other hand, the mean frequency for child self-instruction in either of the upper two grades is almost [illegible] times the mean frequency in Kindergarten.

ILM

The amount of adult corrective feedback to children in task-related activities shows a moderate upward trend with increasing grade level. Otherwise, no major differences are apparent for the variables selected for adult focus.

Children in the two upper grade levels tended to instruct themselves twice as frequently as those in Kindergarten.

Southwest Lab

The mean frequency for adults attentive to children in First Grade is twice that for the other two grades. No other grade differences are apparent.

Children initiated interactions with adults two to three times more frequently in Kindergarten than in the upper two grades. On the other hand, children initiated interactions with other children more often in the upper two grades.

Comparison of Activity Categories within Sponsor and Grade Level

For each FMO variable, χ^2 and CATANOVA statistics were computed on an activity category-by-variable contingency table within each sponsor, grade level, and focus. Table J-3 lists the partition defined for each variable necessary for the χ^2 and CATANOVA procedures. The FMO served as the unit of analysis; FMOs were pooled over classrooms within each sponsor and grade level.

The criterion for discriminability used here was that both the χ^2 and the CATANOVA χ^2 statistics must have a critical level of .01 or less. This criterion was applied to each sponsor/grade level combination. Then the number of sponsor/grade level combinations where a variable discriminated among activity categories was counted for each variable for adult focus and child focus separately, to determine whether any variables consistently discriminated among activity categories. Table J-5 lists the variables that discriminated activity categories on at least 75 percent of the sponsor/grade level combinations. The top-ranked variable for both adult and child focus is "academic events" (FMO-116). Practically all the other variables listed are related to academic or task-related events. This result is certainly consistent with the definition of the activity categories. Table J-6 gives the means by sponsor, grade, and activity category on the frequency of FMO-116 for adult focus. Many of the estimates, especially for Activity Category 4, are based on very few FMOs. For most sponsors, the academic events occurred at least three times more often in reading and math activities (Activity Categories 1 and 2) than in the other two activity categories for both adult focus and child focus.

Table J-5

FMO VARIABLES THAT DISCRIMINATED[*] ACTIVITY CATEGORIES ON AT LEAST 75 PERCENT OF THE SPONSOR/GRADE LEVEL COMBINATIONS

Rank	Number of Combinations	FMO Variable	
		Number	Description
Child Focus			
1	41	116	Academic event
2	38	57	Child engaged in task-related activity
3	35	24	Child instructing self in academic activity
Adult focus			
1	43	116	Academic events
2	43	117	Adult interacting with child or children in task-related activity
3	41	57	Child engaged in task-related activity
4	40	82	Adult instructing children in academic activity
5	40	105	Adult giving children feedback for academic response to adult academic direct question
6	38	20	Child responding with academic theme
7	37	93	Adult giving task-related acknowledgment to children
8	35	64	Adult interacting with large group
9	35	104	Adult giving any feedback
10	34	81	Adult instructing children
11	33	1	Child talking to adult
12	33	65	Teacher interacting with one child
13	33	99	Adult giving children positive corrective feedback in task-related activity

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[*] The heuristic used to define discrimination was that the χ^2 CATANOVA statistics for a variable must have an associated critical level of .01 or less.

Table J-6

MEANS ON FREQUENCY OF ACADEMIC EVENTS (FMO-116)
BY SPONSOR, GRADE AND ACTIVITY CATEGORY

Sponsor	Grade Level	Adult Focus--Activity Category			
		1	2	3	4
FW	K	13.9	14.4	16.6	2.0
	1/ek	20.1	21.4	5.7	2.4
	2/ek	19.2	17.7	7.6	1.1
UA	1/ef	20.1	17.0	5.1	1.1
	2/ef	15.2	8.1	2.0	1.2
	3/ef	13.2	9.4	10.4	2.0
BC	1/ef	9.5	12.9	8.1	0
	2/ef	14.8	18.3	7.5	0.3
	3/ef	16.3	15.3	4.5	0.1
UG	1/ef	14.8	27.6	3.4	0.31
	2/ef	27.8	29.1	0.86	1.6
	3/ef	14.1	22.4	0.7	0
UO	1/ef	23.8	15.9	6.3	1.4
	2/ef	29.7	21.4	8.6	3.1
	3/ef	26.3	24.4	5.0	5.4
UK	K	19.2	18.1	4.0	0.2
	1/ek	17.5	14.7	0.4	3.1
	2/ek	20.1	16.7	7.1	8.6
HS	K	13.1	4.3	2.5	1.8
	1/ek	8.6	11.0	4.5	1.2
	2/ef	15.0	16.6	3.7	0.41
	3/ef	16.6	17.3	3.4	1.6
UF	1/ef	21.0	15.3	15.8	1.8
	2/ef	18.4	16.0	16.8	2.4
	3/ef	19.8	22.7	8.6	10.9
	M	18.3	18.0	10.4	4.0
ED	K	15.5	17.6	4.9	1.3
	1/ek	17.9	11.1	7.6	1.3
	2/ek	16.3	19.8	10.9	1.4
UP	K	14.4	13.4	1.1	0
	1/ek	18.6	22.2	2.7	2.6
	2/ek	18.9	22.5	1.0	3.7
IL	K	19.0	12.1	4.0	0.5
	1/ek	22.0	21.0	0.17	3.3
	2/ek	18.6	21.6	7.4	4.8
SE	K	19.0	18.9	8.2	0.6
	1/ek	22.0	21.0	0.17	3.3
	2/ek	18.6	21.6	7.4	4.8
NFT	K	14.9	15.5	3.3	2.7
	1/ef	21.1	17.6	5.1	3.9
	1/ek	16.1	19.6	5.2	3.2
	2/(ek, ef)	17.8	19.1	7.8	3.6
	3/ef	21.3	18.5	6.0	5.4
	M	17.4	22.4	5.0	3.7

The evident exceptions, Far West and U. Arizona, may be attributable to the high rate at which the activity category changed within FMOs. U. Florida appears to have had almost as many academic events in broad activities (Activity Category 3) as in the first two activity categories. The mean frequency of academic events is about the same for child focus as for adult focus. However, the mean frequency of academic events in reading and math activities (Activities 1 and 2) for child focus is two to three times the frequency for adult focus. This finding is consistent with the observation that the children in this model tended to work independently of the teacher. Thus, the inconsistency found for U. Florida can be attributed to the role teachers played in the classroom vis-à-vis academic events.

Since there are four activity categories and five grade levels (including two first, entering and non-entering), not including mixed, 20 comparisons would be necessary to carry out all the conditional analyses fully. For many grade-level-by-activity category combinations within sponsor, there are few, if any, FMOs, so that some estimates would be highly unreliable.

Activity Category 2 (reading, alphabet, language development) comes closest to having an adequate number of FMOs for each grade level and sponsor. Therefore, only Activity Category 2 and only a selected subset of variables are considered here, to keep the analysis to a manageable size. The set of variables selected and used here is the same as those used in the regression analysis in the next chapter. Some of these variables were salient in discriminating among sponsors or between Follow Through and non-Follow Through in the global analysis. Others were included not so much because they discriminated among sponsors, but because they were of general interest to describe what educational and social processes were occurring that might be closely related to children's performance on tests of achievement.

The relationship of the global analysis to the detailed analysis is analyzed here from several angles. First, there is the question of whether any extreme shifts of the mean frequencies occur from the global analysis to the detailed analysis. These shifts might take several forms, but of interest here would be (1) shifts manifested in an increase in the range of mean frequencies over sponsors, representing greater differences among sponsors; (2) shifts manifested in a decrease in the range, representing less difference among sponsors, or (3) shifts manifested in a consistent displacement of all sponsor means, representing a consistent displacement for all sponsors.

To investigate whether any major shifts in mean frequencies occur, the range of mean frequencies among sponsors within each grade stream was computed on each selected variable for each grade level and grade stream. The range of mean frequencies among the appropriate sponsors was also computed on the basis of the global[*] analysis. See Appendix L for the full enumeration of means based on the global analysis. The ranges for the Kindergarten grade stream are contained in Table J-7(a). The ranges for the Entering First Grade stream are given in Table J-7(b). High/Scope, therefore, was included in the ranges for the global analyses on both grade streams. The endpoint of the range--where it would be different if High/Scope were omitted--is denoted in parentheses in the range for the global analysis.

For the most part, the shifts in range from the global analysis to the detailed analyses are negligible or moderate. The pattern of shifts is not consistent between the two grade streams. This may be because the two grade streams partition the sponsors, and the shifts reflect differences for individual sponsors rather than patterns over grades or episodes. Also, the two grade streams do consist of different grade levels, so the shifts for Kindergarten through Second Grade do not correspond to the shifts for Entering First through Third Grades. For the Kindergarten grade stream, the Kindergarten grade level has some moderate shifts on about half of the variables. The other two grade levels have shifts on about a quarter of the variables. There is no consistent pattern across grade levels of any particular variable except FMO-25[c] ("Child instructing self by using objects"), for which there is a consistent decrease in the mean frequency across grade levels.

In the Entering First Grade stream, the First and Third Grades have shifts on about one-quarter of the variables. Variable FMO-93[a] ("Adult giving task-related acknowledgment to children") has a range that at least doubles in length across all grade levels, so on this variable the extremes are more evident in the detailed analysis.

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[*] Global analysis combined the grades and activities of a sponsor.

Table J-7(a)

RANGE OF SPONSOR MEAN FREQUENCIES FOR KINDERGARTEN GRADE STREAM: GLOBAL AND FOR EACH GRADE LEVEL FOR ACTIVITY CATEGORY 2

FMO Variable		Analysis			
			Detailed		
				Non-Entering	
Number	Description	Global	Kindergarten	First	Second*
Adult Focus					
16	Child asking direct question	.28- 1.80	.22- .92	.17- 1.73	.29- 1.42
20 (4.12)+	Child responding with academic theme	2.90- 9.22	.53-11.56	3.98 -11.47	6.27-12.90
78	Adult asking direct question of children	3.91- 8.05	4.42- 8.18	3.62- 8.71	4.12- 7.68
79	Adult asking open-ended question of children	.47- 1.83 (1.38)	0 - 3.67	.16- 1.68	.21- 1.73
81	Adult instructing children	6.11-10.62	3.73-16.52	4.04- 9.95	4.19-13.12
89	Adult praising children in task-related activity	.76- 2.13	.44- 3.36	.82- 3.24	.42- 2.38
90	Adult praising children for behavior	.04- 2.72	0 - 2.73	0 - 2.66	0 - 4.00
93	Adult giving task-related acknowledgment to children	1.10- 4.88	1.04- 4.07	1.47- 4.63	1.52- 5.37
98 (1.19)	Adult giving children positive corrective feedback for behavior	1.01- 1.48	.60- 1.09	.79- 2.48	.68- 1.19
100	Adult giving children corrective feedback in task-related activity	.21- 3.01	.20- 3.91	.22- 2.45	.52- 3.21
105	Adult giving children feedback for academic response to adult academic direct question	.65- 2.26	.20- 2.09	.71- 3.26	1.18- 3.20
110 (.45)	Adult showing positive behavior	.31- .97	.14- .78	.13- .71	.06- .59
Child Focus					
2	Child initiating interaction with adult	1.46- 3.70	.56- 3.37	.82- 3.89	1.33- 3.51
8	Child initiating interaction with different child	1.62- 3.88 (3.78)	1.32- 4.89	1.38- 3.27	.66- 3.24
23 (11.18)	Child instructing self	10.43-29.07	8.41-25.15	14.77-28.02	14.28-34.95
25	Child instructing self by using objects	1.68- 5.62	0 - 3.83	0 - .99	0 - 1.17
27	Child instructing other children	.09- 1.04	0 - .94	0 - 1.09	0 - 1.08
38	Child making productive statement	.79- 5.95	.24- 3.35	.64- 4.19	.21- 4.68
42	Child waiting	2.47- 9.06	.24- 6.68	2.75- 8.95	.63- 5.41
50	Child showing positive behavior	.72- 2.77	.66- 3.56	.08- 1.92	.30- 3.16
88	Adult praising children	.10- 1.21	.12- 1.69	.10- .68	.07- 1.43
111	All negative behavior	.08- .49 (.44)	0 - 1.00	0 - .65	0 - .26

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* High/Scope not included.

+ Number in parentheses is bound on range when High/Scope is not included.

Table J-7 (b)

RANGE OF SPONSOR MEAN FREQUENCIES FOR ENTERING FIRST GRADE STREAM: GLOBAL AND FOR EACH GRADE LEVEL FOR ACTIVITY CATEGORY 2

FMO Variable		Analysis			
			Detailed		
Number	Description	Global	Entering First*	Second	Third
Adult Focus					
16	Child asking direct question	.62- 1.39	.38- .96	.60- 1.56	.65- 2.49
20 (3.18)†	Child responding with academic theme	2.90-11.33	1.91-10.94	4.12-11.77	3.72-11.84
78	Adult asking direct question of children	4.84- 6.79	3.85- 6.92	4.22- 7.27	3.97- 8.24
79	Adult asking open-ended question of children	.14- 1.83 (1.54)	.11- 1.44	.20- 1.61	.02- 1.51
81 (7.57)	Adult instructing children	6.17-13.13	4.95- 9.87	4.71-13.96	4.01- 9.95
89	Adult praising children in task-related activity	.53- 1.60	.66- 2.99	.30- 2.05	.28- 1.10
90	Adult praising children for behavior	.01- .18	0 - .43	0 - .25	0 - .02
93	Adult giving task-related acknowledgment to children	2.26- 3.22	1.77- 4.98	2.32- 4.69	1.67- 4.18
98	Adult giving children positive corrective feedback for behavior	.37- 1.61	.33- 1.72	.35- 1.94	.31- 1.76
100	Adult giving children corrective feedback in task-related activity	.33- 2.42		.39- 4.32	.51- 5.06
105	Adult giving children feedback for academic response to adult academic direct question	.67- 1.80	.62- 1.95	.43- 2.10	.47- 2.36
110	Adult showing positive behavior	.10- 1.44	.09- .62	.14- 2.35	.03- 1.27
Child Focus					
2	Child initiating interaction with adult	1.12- 3.49	1.17- 6.93	1.55- 6.56	.59- 4.43
8	Child initiating interaction with different child	1.14- 4.05	1.79- 3.42	.73- 5.77	.58- 4.09
23 (14.69)	Child instructing self	10.43-32.16	18.58-37.75	23.31-38.56	17.20-38.40
25	Child instructing self by using objects	.08- 3.88	0 - .36	0 - 5.31	0 - 1.13
27	Child instructing other children	.09- .70	.10- .88	0 - 1.15	0 - 1.37
38	Child making productive statement	1.09- 4.26 (2.71)	1.42- 2.33	.54- 5.18	.34- 3.12
42	Child waiting	2.95- 9.02 (5.62)	.67- 8.02	1.46- 8.79	1.19- 5.67
50	Child showing positive behavior	.26- 4.19	.36- 4.20	.22- 3.78	.07- 3.96
88	Adult praising children	.03- .33	.10- .70	0 - .39	0 - .26
111	All negative behavior	.05- .66	.01- .60	.01- .45	0 - .33

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[*] High/Scope not included.

[†] Number in parentheses is bound on range when High/Scope is not included.

The changes in the range of mean frequencies do not, of course, reveal whether a sponsor maintains on the detailed analysis the same position relative to the other sponsors that he holds on the global analysis. For example, the range of the mean frequencies could be identical but the ranking of sponsors be reversed. To probe the changes of sponsor position relative to the other sponsors, each sponsor's ranking on the global analysis was compared to his ranking on the detailed analysis on each of the selected variables and appropriate grade levels. As in the comparison of ranges, the rankings were compared within grade stream.

A change in the relative position of a sponsor from one analysis to another might be the result of a significant change or might simply be an indication that the mean frequencies for sponsors are not very different, making the ranking of sponsors arbitrary. Thus interpretation of shift in ranking must be made with caution. The procedure used here was to consider only major changes in ranking. Since there were six to eight sponsors for each grade level for each grade stream, a change in rank of four or more was considered major. Such a shift would necessarily change a sponsor's position from extreme on one analysis to moderate or the opposite extreme on the other analysis.

Table J-8 lists the major changes in ranking from the global analysis to the detailed analyses by sponsor and grade level for each selected variable. The rank on the two analyses is given for each case where a major change occurred. Not all the changes listed are of the same magnitude in changing a sponsor's relative status. For example, the change of U. Pittsburgh from the rank of 5 on the global analysis to the rank of 1 on the Second Grade detailed analysis on FMO-16[a] ("Child asking direct question") is a result of inversions in the order of sponsors who were not in the same underlined grouping in the Newman/Keuls analysis. Most of the major changes listed are of the former type, so even the major changes in rank are not, for the most part, inconsistent with the global analysis.

From the very limited analyses performed here, the global and detailed comparisons of sponsors would lead to conclusions that would be compatible.

Table J-9 shows the means on selected FMO variables during reading activity (CCL-5).

Table J-8

SPONSORS WHO SHIFTED FOUR OR MORE RANKS FROM THE GLOBAL ANALYSIS TO THE DETAILED ANALYSIS

FMO Variables		Kindergarten Grade Stream			Entering First Grade-Stream		
Number	Description	Kindergarten (8 Sponsors)	Non-Entering First (8 Sponsors)	Second (7 Sponsors)	Entering First (6 Sponsors)	Second (7 Sponsors)	Third (7 Sponsors)
Adult Focus							
16	Child asking direct question			UP 5-1	UF 2-6	UA 7-2 BC 3-7	
20	Child responding with academic theme		UK 8-3				
78	Adult asking direct question of children		SE 2-7 UK 5-1	UK 5-1	UK 5-1	UA 2-6	
79	Adult asking open-ended question of children		UK 5-1 SE 6-2				
89	Adult praising children in task-related activity		UK 5-1 IL 7-2	UP 7-3			
90	Adult praising children for behavior		FW 6-2	FW 5-1			UO 7-1
93	Adult giving task-related acknowledgment to children					UF 2-6	
98	Adult giving children positive corrective feedback for behavior	HS 1-5 ED 3-7 UP 6-2 SE 7-3	IL 8-4		UF 6-2		
100	Adult giving children corrective feedback in task-related activity		HS 6-2				
105	Adult giving children feedback for academic response to adult academic direct question		UK 7-2 SE 3-7	UK 6-1	UO 6-2 UA 1-6		HS 2-6
110	Adult showing positive behavior			ED 7-1 IL 7-2	UA 6-2		
Child Focus							
2	Child initiating interaction with adult	SE 2-6 ED 6-2 UP 7-1	NFT 1-5 UP 7-3	UP 6-2			
8	Child initiating interaction with different child	UP 2-8	HS 8-4				
23	Child instructing self						UF 7-3 UA 2-6
25	Child instructing self by using objects	NFT 2-8 UP 5-15	NFT 2-8 ED 8-2				
27	Child instructing other children			ED 7-3	UG 2-6	UA 7-3	
38	Child making productive statement				BC 6-1		
42	Child waiting	ED 6-1	FW 1-5	ED 6-1		UG 3-7	HS 7-3
50	Child showing positive behavior	UP 1-8 FW 7-3	ED 8-3				
88	Adult praising children		HS 8-4	UP 5-1			UO 7-3
111	All negative behavior						HS 6-1

Note: First digit = rank on Newman/Keuls.
Second digit = rank on detailed analysis.

Table J-9

MEANS DURING READING, ALPHABET, LANGUAGE DEVELOPMENT (CCL-5)
(Activity Category 2)
FMO Variable 2: Child initiating interaction with adult (Child Focus)

	Grade Level/Stream					
Sponsor	K	1/ef	1/ek	2/(ek,ef)	3/ef	M
FW	2.1	--	1.9	2.8	--	--
UA	--	6.9	--	1.8	.6	--†
BC	--	3.3	--	4.1	4.4	--
UG	--	3.7	--	7.8	4.4	--
UO	--	4.3	--	6.6	3.4	--
UK	3.4	--	3.9	3.5	--	--
HS	2.8	--	2.4	1.7	1.8	--
UF	--	1.2	--	1.8	1.3	1.9
ED	.9	--	2.8	2.0	--	--
UP	.6	--	1.7	1.5	--	--
IL	3.1	--	1.5	2.1	--	--
SE	2.7	--	.8	1.3	--	--†
NFT	1.7	1.6	2.1	1.6	1.3	2.5*

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* Significant difference among grade levels at .01 level.

† Significant difference among grade levels at .001 level.

Table 9 (continued)

MEANS DURING READING, ALPHABET, LANGUAGE DEVELOPMENT (CCL-5)
(Activity Category 2)
FMO Variable 8: Child initiating interaction with different child
(Child Focus)

	Grade Level/Stream					
Sponsor	K	1/ef	1/ek	2/(ek,ef)	3/ef	M
FW	3.2	--	3.2	4.4	--	--
UA	--	2.9	--	4.4	3.4	--
BC	--	2.8	--	4.7	3.2	--
UG	--	2.1	--	1.3	1.6	--
UO	--	1.8	--	0.7	0.6	--
UK	1.3	--	1.4	0.7	--	--*
HS	2.2	--	2.4	3.8	4.1	--
UF	--	3.4	--	5.8	3.4	2.3
ED	2.0	--	2.0	2.3	--	--
UP	4.9	--	1.4	1.3	--	--
IL	4.1	--	3.3	5.2	--	--
SE	1.8	--	2.9	3.1	--	--*
NFT	1.7	2.0	2.8	2.3	2.5	3.7

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*Significant difference among grade levels at .01 level.

Table J-9 (continued)

MEANS DURING READING, ALPHABET, LANGUAGE DEVELOPMENT (CCL-5)
(Activity Category 2)
FMO Variable 16: Child asking direct question (Child Focus)

	Grade Level/Stream					
Sponsor	K	1/ef	1/ek	2/(ek,ef)	3/ef	M
FW	.8	--	2.3	3.1	--	--
UA	--	.8	--	0.8	0.6	--
BC	--	.4	--	0.3	0.6	--
UG	--	.4	--	1.1	0.6	--
UO	--	.2	--	0.4	0.3	--
UK	.5	--	.7	0.6	--	--
HS	.3	--	.6	0.8	1.8	--*
UF	--	1.1	--	2.5	1.3	0.7*
ED	.2	--	.5	0.3	--	--
UP	.7	--	.7	0.6	--	--
IL	1.0	--	.8	0.6	--	--
SE	.4	--	.2	0.4	--	--
NFT	.5	.4	.7	0.6	0.5	0.7

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*Significant difference among grade levels at .01 level.

Table J-9 (continued)

MEANS DURING READING, ALPHABET, LANGUAGE DEVELOPMENT (CCL-5)
(Activity Category 2)
FMO Variable 23: Child instructing self (Child Focus)

	Grade Level/Stream					
Sponsor	K	1/ef	1/ek	2/(ek,ef)	3/ef	M
FW	12.6	--	22.4	24.4	--	--
UA	--	29.6	--	23.4	34.4	--
BC	--	21.2	--	33.3	26.7	--
UG	--	18.6	--	29.9	38.4	--*
UO	--	20.3	--	25.4	32.1	--
UK	25.1	--	26.6	34.2	--	--*
HS	8.4	--	15.8	19.2	17.2	--†
UF	--	37.8	--	38.6	28.1	15.9†
ED	18.6	--	26.2	35.0	--	--
UP	9.9	--	28.0	31.1	--	--†
IL	9.0	--	20.8	25.3	--	--†
SE	10.8	--	14.8	14.2	--	--
NFT	16.8	33.5	24.8	25.1	31.1	28.8

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*Significant difference among grade levels at .01 level.

†Significant difference among grade levels at .001 level.

Table J-9 (continued)

MEANS DURING READING, ALPHABET, LANGUAGE DEVELOPMENT (CCL-5)
(Activity Category 2)
FMO Variable 45: Child attentive to adult (Child Focus)

Sponsor	Grade Level/Stream					
	K	1/ef	1/ek	2/(ek,ef)	3/ef	M
FW	7.2	--	3.7	4.5	--	--
UA	--	6.0	--	6.9	4.9	--
BC	--	5.8	--	5.0	7.0	--
UG	--	9.6	--	9.2	3.6	--*
UO	--	8.5	--	8.0	5.4	--
UK	1.0	--	1.2	1.6	--	--
HS	9.3	--	7.9	7.8	9.1	--
UF	--	4.8	--	2.3	5.7	2.6
ED	12.1	--	5.4	7.1	--	--
UP	10.1	--	7.0	10.0	--	--
IL	6.6	--	5.1	2.6	--	--
SE	10.8	--	12.3	6.6	--	--
NFT	7.4	6.5	4.9	7.4	8.5	4.4

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*Significant difference among grade levels at .01 level.

Table J-9 (continued)

MEANS DURING READING, ALPHABET, LANGUAGE DEVELOPMENT (CCL-5)
(Activity Category 2)

FMO Variable 78: Adult asking direct question of children
(Adult Focus)

	Grade Level/Stream					
Sponsor	K	1/ef	1/ek	2/(ek,ef)	3/ef	M
FW	4.4	--	5.7	5.7	--	--
UA	--	6.9	--	6.7	4.5	--
BC	--	3.9	--	4.2	5.3	--
UG	--	5.6	--	6.8	4.9	--
UO	--	5.7	--	6.3	8.2	--
UK	6.0	--	3.6	4.1	--	--
HS	6.7	--	8.7	6.2	5.6	--
UF	--	6.8	--	7.3	4.0	3.4
ED	4.8	--	4.6	5.7	--	--
UP	8.1	--	6.9	7.7	--	--
IL	6.2	--	6.3	5.5	--	--
SE	5.1	--	7.4	5.3	--	--*
NFT	5.7	6.6	4.3	6.1	5.6	6.5

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*Significant difference among grade levels at .01 level.

†Significant difference among grade levels at .001 level.

Table J-9 (continued)

MEANS DURING READING, ALPHABET, LANGUAGE DEVELOPMENT (CCL-5)
(Activity Category 2)
FMO Variable 81: Adult instructing children (Adult Focus)

	Grade Level/Stream					
Sponsor	K	1/ef	1/ek	2/(ek,ef)	3/ef	M
FW	8.4	--	8.6	7.6	--	--
UA	--	9.8	--	7.1	8.0	--
BC	--	9.9	--	8.8	9.9	--[*]
UG	--	9.0	--	14.0	10.0	--[*]
UO	--	5.0	--	8.4	8.1	--[*]
UK	4.2	--	4.0	5.4	--	--
HS	8.6	--	5.4	4.7	7.0	--
UF	--	7.3	--	5.4	4.0	3.9[†]
ED	14.6	--	9.3	13.1	--	--[*]
UP	3.7	--	5.7	4.2	--	--
IL	7.3	--	6.7	7.0	--	--[*]
SE	16.5	--	9.9	11.9	--	--
NFT	10.8	7.2	7.1	9.3	9.5	5.9

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[*] Significant difference among grade levels at .01 level.

[†] Significant difference among grade levels at .001 level.

Table J-9 (continued)

MEANS DURING READING, ALPHABET, LANGUAGE DEVELOPMENT (CCL-5)
(Activity Category 2)
FMO Variable 89: Adult praising children in task-related activity
(Adult Focus)

	Grade Level/Stream					
Sponsor	K	1/ef	1/ek	2/(ek,ef)	3/ef	M
FW	.4	--	1.4	.4	--	--[*]
UA	--	.8	--	1.1	.4	--
BC	--	.9	--	.3	.4	--[*]
UG	--	.9	--	1.4	.5	--[*]
UO	--	2.3	--	2.0	.9	--[†]
UK	1.6	--	.8	1.5	--	--
HS	1.8	--	2.1	1.6	1.1	--
UF	--	.6	--	1.0	.3	.3[†]
ED	.4	--	1.5	.5	--	--[*]
UP	3.4	--	2.3	.9	--	--[†]
IL	2.4	--	1.0	2.4	--	--[†]
SE	1.7	--	3.2	1.7	--	--
NFT	1.4	1.1	1.2	.9	.5	.4

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[*] Significant difference among grade levels at .01 level.

[†] Significant difference among grade levels at .001 level.

Table J-9 (continued)

MEANS DURING READING, ALPHABET, LANGUAGE DEVELOPMENT (CCL-5)
(Activity Category 2)
FMO Variable 93: Adult giving task-related acknowledgment to children
(Adult Focus)

	Grade Level/Stream					
Sponsor	K	1/ek	1/ek	2/(ek,ef)	3/ef	M
FW	3.4	--	4.0	3.5	--	--
UA	--	5.0	--	4.7	4.2	--
BC	--	1.8	--	2.7	3.5	--*
UG	--	2.5	--	2.3	1.8	--
UO	--	3.6	--	2.3	3.6	--
UK	2.6	--	2.6	2.8	--	--
HS	4.1	--	3.7	3.3	3.2	--
UF	--	2.5	--	4.0	1.7	3.4*
ED	1.0	--	1.9	1.5	--	--
UP	3.6	--	4.6	5.4	--	--
IL	3.1	--	3.2	3.5	--	--
SE	2.6	--	1.5	2.5	--	--
NFT	3.6	3.9	3.0	3.1	3.2	4.2

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*Significant difference among grade levels at .01 level.

Table J-9 (continued)

MEANS DURING READING, ALPHABET, LANGUAGE DEVELOPMENT (CCL-5)
(Activity Category 2)
FMO Variable 100: Adult giving children corrective feeback
in task-related activity

Sponsor	Grade Level/Stream K	1/ef	1/ek	2/(ek,ef)	3/ef	M
FW	.2	--	1.1	1.2	--	--[†]
UA	--	.5	--	.4	.5	--
BC	--	1.6	--	4.3	1.9	--[†]
UG	--	1.6	--	2.5	.6	--[†]
UO	--	.9	--	1.6	1.3	--[*]
UK	3.9	--	2.1	3.2	--	--
HS	.5	--	.9	3.1	5.1	--[†]
UF	--	3.4	--	2.8	3.7	3.4
ED	.3	--	.2	.5	--	--
UP	1.5	--	2.4	2.3	--	--
IL	1.2	--	1.9	2.1	--	--
SE	1.0	--	1.2	1.9	--	--
NFT	1.2	1.4	2.0	2.2	2.1	2.6

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[*] Significant difference among grade levels at .01 level.

[†] Significant difference among grade levels at .001 level.

Table J-9 (concluded)

MEANS DURING READING, ALPHABET, LANGUAGE DEVELOPMENT (CCL-5)
(Activity Category 2)
FMO Variable 108: Adult attentive to children
(Adult Focus)

Sponsor	K	1/ef	1/ek	2/(ek,ef)	3/ef	M
	Grade Level/Stream					
FW	5.0	--	5.9	6.2	--	--
UA	--	5.2	--	10.9	9.1	--
BC	--	4.6	--	13.7	7.2	--
UG	--	3.6	--	5.1	6.1	--
UO	--	8.3	--	10.0	5.5	--
UK	2.4	--	8.5	5.5	--	--
HS	.3	--	1.9	4.6	3.6	--
UF	--	11.1	--	3.3	12.9	6.4[†]
ED	8.2	--	3.1	10.0	--	--
UP	1.8	--	1.8	2.3	--	--
IL	2.9	--	2.0	1.3	--	--
SE	2.4	--	6.4	3.1	--	--
NFT	2.3	7.9	5.5	7.2	13.8	4.4

[†] Significant difference among grade levels at .001 level.

Appendix K

REPORTS OF STAFF TRAINING BY SPONSORS

Appendix K

REPORTS OF STAFF TRAINING BY SPONSORS

Far West Lab

- Training of Teaching Staff

  Pre-service--Pre-service training is conducted at most sites by the program advisor, either with sponsor support or by herself. Sessions usually last one week; content and training techniques vary with the site.

  In-service--Frequency of in-service training varies with the site. Regularly scheduled sessions are held, but can vary according to interest area, content, grade level, and format.

- Monitoring Teaching Staff--Program advisors observe in classrooms, informally or with an instrument, discuss results with teaching staff, and contract with each teacher on next steps. A participatory observation and mutual analysis results. Laboratory staff observe classrooms in each site to assess level of implementation, and give feedback to the site.

- Sponsor-Based Representative

  Responsibilities--Sponsor staff's primary responsibility is to provide ongoing training to the on-site program advisor.

  Contact with Site--Frequency of site visits varies with each site; national workshops three times a year, on-site training in all sites once every two months.

- Local Representative

  Responsibilities--Program advisors conduct pre-service, in-service training, and provide ongoing training for teaching staff and other FT staff. Staff is defined here as stakeholders in all components of the program, including principals, parents, and support staff. Contact with these persons may be individual or through participation in or presentation of meetings. Each local representative is responsible for about ten teachers and ten teaching assistants. Additional duties vary with site.

Contact with Teaching Staff--Frequency of classroom visits varies with each site; however, normally it is one day in a 3-week period in each classroom. Frequency of in-service training varies with site; however, normally it is 2 hours per 2 weeks.

Training--Local representatives attend three national workshops per year in addition to ongoing training from sponsor staff on site.

University of Arizona

- Training of Teaching Staff

  Pre-service--Program assistants conduct pre-service training sessions on site, lasting one to two weeks. Teaching staff is taught the basic philosophy, use of new materials, creation of desired learning environment. Workshops help teachers and aides implement program goals.

  In-service--Program assistants conduct half-day to full-day on-site workshops two to four times a month. Topics not specified by sponsor.

- Monitoring Teaching Staff--Program assistant works with teacher(s) and aide(s) in each classroom three to four days a month. University staff makes monthly visits to local communities.

- Sponsor-Based Representative

  Responsibilities--Sponsors Field Staff are teacher of the Program Assistants and liaison between sites and the sponsor.

  Contact with Site--Field staff visits 3 to 4 days in each site on a monthly basis.

- Local Representative

  Responsibilities--The program assistant's primary role is training teaching staff in implementation of the model. Each program assistant is responsible for five to seven teachers.

Contact with Staff--Spends 3-4 days a month in each classroom and conducts pre-service and in-service training.

Training--Four-week training session at University by University project staff. Taught basic philosophy of the model and strategies for training through discussion groups, audio-visual presentations, and demonstrations.

Bank Street College

- Training of Teaching Staff

  Pre-Service--Field representative, College resource staff, and staff developers conduct pre-service training on site, lasting 2-3 days to 3 weeks, depending on site. Content depends on experience of teaching staff; usually includes training in diagnostic tools, Bank Street approach to curriculum, individualization of curriculum and workshops to help teaching staff implement program goals.

  In-service--Staff developers work with teaching teams (including professional and paraprofessional) both on an individual basis and in small groups. Topics are drawn from context of on-going program. Whenever possible, program analysis tools are used as the basis for understanding and implementing the goals of the program.

- Monitoring Teaching Staff--College or local staff use two observation instruments to measure quality of communication and individual child behavior in the classroom, and give feedback to projects. Field representative reviews staff developers log on each classroom. Self study and teacher assessment forms are also used; the former by the teaching team, the latter by a person outside the classroom.

- Sponsor-Based Representative

  Responsibilities--The field representative serves as liaison between college and community, works primarily with staff developers. Resource specialists are used on a less-continuous basis for specific aspects of model implementation.

  Contact with Site--Monthly visits last about 5 days. Some sites have more than one field representative (and get much more time).

- Local Representative

  Responsibilities--Staff developers work with teachers and aides in classrooms and workshops. Secondarily, they serve as parent liaison. Each staff developer serves about 8-10 classrooms. Ancillary staff personnel who provide liaison with parents, psychological, health and nutritional services, work closely with the staff developer.

  Contact with Teaching Staff--Amount of time spent in each classroom and frequency of in-service training both vary with site, and needs of each teaching team.

  Training--Attend about four 4-day training sessions at College, where Bank Street staff teaches group process skills, curriculum skills, child development. Role playing, video, lecture, observation in classrooms, workshops, and discussion techniques are used in training.

University of Georgia

- Training of Teaching Staff

  Pre-service--Usually planned by resource teacher, local teaching staff and conducted with the aid of University staff on-site. Various training techniques, including workshops and video presentations, are used to teach theoretical bases of program and implementation goals.

  In-service--Frequency of in-service training, conducted by University staff, varies with site; average, once a month.

- Monitoring Teaching Staff--Resource teacher observes in classrooms regularly, giving feedback to teaching staff. Project officer and classroom specialist observe all classrooms periodically.

- Sponsor-Based Representative

  Responsibilities--Project advisor visits each site, deals primarily with resource teachers. M[illegible]et with FT director or PAC. Observes some classrooms.

  Contact with Site--Visits each site for one week per month.

- Local Representative

  Responsibilities--Resource teachers assist in pre-service, in-service training and provide on-going monitoring and training to teaching staff. Each deals with six to ten teachers or aides.

  Contact with Teaching Staff--Spends one day per month in each classroom. Assists in pre-service, in-service training.

  Training--Attend two 1-week sessions at University per year. Each session is focused around a different topic and includes discussion groups, audio-visual presentations and workshops.

University of Oregon

- Training of Teaching Staff

  Pre-service--Conducted on-site by local representative and project manager and/or consultant. Length varies with site, usually 1-2 weeks.

  In-service--Frequency of in-service training varies with site; average, once a month. Conducted by local representative and consultant or project manager, if they are on-site. Topic and format varies.

- Monitoring Teaching Staff--Local representative observes in each classroom, discusses any problems with teaching staff, and makes a follow-up visit. Every 2 weeks a criterion reference test in a different subject area is given, and results sent to the University, which reports to site.

- Sponsor-Based Representative

  Responsibilities--Project manager participates in teacher training, visits site and monitors data from site. Additional tasks included some administrative, community liaison, data collection tasks.

  Consultants perform local representatives' duties in smaller sites, give assistance in specific areas to local representatives in other sites.

Contact with Site--Project manager spends average of 8-10 days a year on-site, concentrated at beginning of year. Attempts to spend 50% of time on-site in classrooms. Consultant's time on-site varies widely with site.

- Local Representative

  Responsibilities--Primary responsibilities are training and supervision of teaching staff. Should spend 70% of their time in classrooms. Other tasks kept to a minimum. Responsible for 20-30 teachers and aides. (Some smaller sites do not have a representative.)

  Contact with Teaching Staff--Amount of time spent in each classroom varies according to need and curricular priorities.

  Training--Two-week summer session at University. Study curriculum, teaching skills, training and supervision procedures. Demonstrations, video tape presentations and experience in classroom used in training.

University of Kansas

- Training of Teaching Staff

  Pre-service--One week regional sessions held for new teachers, aides, experienced teachers, aides in need of additional training. Training done in behavior analysis classrooms in behavior analysis teaching techniques and appropriate use of instructional materials. Out-of-classroom training included observation techniques, videotape feedback, and special problems. Training was done primarily by classroom teaching staff with the assistance of University personnel.

  In-service--Staff trainers conducted on an average of once a week staff development sessions. Included were the use of tokens, praise, instructional materials and other behavior analysis teaching procedures.

- Monitoring Teaching Staff--Staff trainers use observation instrument in classrooms, giving feedback to teaching staff. Teachers, aides use same instrument to evaluate video tapes of their own classroom behavior. Weekly progress report on each child (text page numbers) sent to University which sets weekly targets for each child. Charts of child progress posted in each classroom and updated weekly.

- Sponsor-Based Representative

  Responsibilities--District advisors make regular site visits working with staff trainers, teachers, aides, policy advisory committee project directors, and others involved and interested in the Follow Through program.

  Contact with Site--Spends at least 3 days a month in each site.

- Local Representative

  Responsibilities--Staff trainers' primary task is teacher training. Assistant staff trainers train parent-teachers. Each is responsible for about 10 classrooms. Other responsibilities kept to a minimum.

  Contact with Teaching Staff--Amount of time in each classroom varies with site, from a few hours to 2 days a month. Regular, frequent staff development sessions.

  Training--One-week session at University. Trained in model and in training techniques, such as video, modeling and coaching. Assistant staff trainers attend similar session. Both receive on-going training from district advisor.

High Scope

- Training of Teaching Staff

  Pre-service--One-week workshop held on site by consultant and curriculum advisor. Use of classroom materials, how to teach basic concepts in different subject areas, use of child studies to assess level of development in order to individualize teaching emphasized. Classroom simulation important part of training.

  In-service--Monthly workshops usually held when consultant is on site. Usually deal with topic suggested by FT director in advance. Curriculum assistant works with teachers, aides in classrooms, meets with them and attends planning sessions.

- Monitoring Teaching Staff--Weekly classroom observation by curriculum assistant, with feedback to teachers and aides. Checklists to assess effective implementation are used by curriculum assistant and teaching staff. Twice a year field service coordinator visits each site to evaluate implementation. Once a year High/Scope project director visits each site to evaluate implementation.

- Sponsor-Based Representative

  Responsibilities--Consultant visits each site, works primarily with the curriculum assistant, training and assisting her. Works with teacher, does demonstration teaching, observes classrooms, attends workshops, works with parent coordinator, FT director, sometimes meets with PAC and attends parent meetings. Submits monthly report.

  Contact with Site--One week per month in each site.

- Local Representative

  Responsibilities--Curriculum assistants are responsible for training and supervising the teaching staff. They conduct training sessions, frequent planning sessions with teachers observe classrooms, perform demonstration teaching. Each is responsible for six to eight classrooms.

  Parent coordinators train parents to work in classrooms and do home teaching.

  Contact with Teaching Staff--Curriculum assistants usually spend about 1/2-day per week in each classroom, and conduct monthly workshops, more frequent meetings.

  Training--Three-day workshop in December, 1-week workshop in May, both at High/Scope. Training emphasis on use of available materials within the program, teaching specific concepts in different subject areas. Classroom simulation used in training.

  Parent coordinators receive similar training. Both receive on-going training from consultant on site.

University of Florida

- Training of Teaching Staff

  Pre-service--Teachers and parent educators attend 2-3 week summer workshop at University. Taught how to plan together, build learning tasks to be taken into the home, role relations, program goals, how to interact with parents and involve them in FT. Consultant conducts an additional 2-day session on site.

In-service--Monthly full day workshops, when consultant is on site. Training in same areas as covered in pre-service training. Parent educators are given financial aid to attend special program-relevant classes in nearby colleges.

- Monitoring Teaching Staff--Parent educator's home visit reports and video tapes of teacher-parent educator planning sessions are sent to the University for evaluation. Feedback given through consultant. Task specialist observes in classrooms. Consultant works with parent educators on home visits.

- Sponsor-Based Representative

  Responsibilities--Consultant's role varies with site. Usually spends one day with parent educators, attends PAC meeting, conducts workshop, works with teachers and parent educators in classrooms.

  Liaison officer is administrative link between site and University.

  Contact with Site--Consultant, 2 days per month. Liaison officer, three 2-day visits a year.

- Local Representative

  Responsibilities--Task specialists assist with teachers, parent educators in working together to implement the model. Task specialist assists in in-service training, provides on-going evluation and training to teachers, parent educators.

  Contact with Teaching Staff--Varies with site; goal is one hour with each team per week. Assists at monthly workshops.

  Training--Two weeks per year in workshops at the University, 2-day on-site session conducted by consultant. Taught how to teach teachers and parent educators to plan together, how to build home learning tasks, role relations, program goals, how to teach adults.

ED

- Training of Teaching Staff--No information available.

- Monitoring Teaching Staff--No information available.

- Sponsored-Based Representative

  Responsibilities--"An EDC advisory team makes monthly visits to each site. The advisory team conducts workshops for teachers, aides, parents and administrators, works with teachers and aides in the classroom; provides appropriate books and materials, . . . and assists school administrators with problems related to classroom change."*

  Contact with Site--Monthly visits, usually days long.

- Local Representative--No information available.

University of Pittsburgh

- Training of Teaching Staff

  Pre-service--Two-week session conducted on site by local supervisors and the sponsor consultant. Demonstrations and written materials are used to train teaching staff in specific interactions, use of materials, math, reading, and early learning programs; record keeping, testing techniques, and procedures.

  In-service--Local supervisors conduct periodic training meetings on site.

- Monitoring Teaching Staff--Local supervisor uses observation, tests, interviews, checklists to evaluate teaching staff. Feedback given in training meetings, and in supervisory conferences with individual teacher/aide teams.

- Sponsor-Based Representative

  Responsibilities--Staff developer helps with pre-service training, provides on-going training to local supervisor, evaluates site.

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*Appendix A, Follow Through Program Sponsors, SRI.

Contact with Site--Monthly visits, usually 2-3 days long.

- Local Representative

  Responsibilities--Local supervisor trains and monitors teaching staff. Each is responsible for about six teacher/aide teams. May be a specialist in one area and give assistance to other teachers in his field. He also collects data on level of implementation for the sponsor.

  Contact with Teaching Staff--Visits each classroom each week. Conducts teacher and aide training.

  Training--Six workshops per year at University. Taught specific interactions with children, use of materials, procedures, testing techniques, record keeping, and improvements in the reading, math and early learning curricula.

IL

- Training of Teaching Staff

  Pre-service--Pre-service training is conducted on site, every summer, by model sponsor staff specialists. Sessions last 1-2 weeks and are attended by teachers, trainers and PAC representatives. New teachers are instructed in the entire program and experienced teachers are given review and instructed in new program developments.

  In-service--In-service training sessions are held once a month by the site coordinator and once a week by an on-site trainer. The sessions are conducted on site and usually last 3 hours. Additional sessions are called as needed. Sessions are attended by teachers and paraprofessionals. New games, learning techniques and Distar methods are learned through demonstration and active participation. New games are created to take back to the classroom.

- Monitoring Teaching Staff-- Local representative holds weekly sessions with teaching staff. Monthly visits are made by sponsor-based representative and consultants in each subject area make monthly visits to each site. Level of implementation is assessed in each classroom and feedback is given to model sponsor and teaching staff. Tests prepared and evaluated by the model sponsor are administered to the teaching staff.

Some self-evaluation is done through demonostrative procedures advocated by the model sponsor.

- Sponsor-Based Representative

  Responsibilities--Site-coordinator visits each site and classroom once per month. Purpose of the visits are to evaluate (through tests and observations), train, answer questions and provide new materials for the teaching staff. Reports are prepared for each teacher and presented to the sponsor. Model sponsor sends one consultant in each subject area (math, reading, dramatic activity) once per month to each site. Each representative submits a report to sponsor on each teacher.

  Contact with Site--Site-coordinators and consultants visit each site and classroom once per month. At least four sponsor representatives at each site per month.

- Local Representative

  Responsibilities--Provide teachers with ongoing program developments and ensure continuity of the implementation of program. Also, assist teachers in implementing program teacher evaluation and feedback to model sponsor. Usually assigned to one grade level.

  Contact with Teaching Staff--Varies with site, usually 1-3 days per week.

  Training--One session of 1-2 weeks in summer and one 1-week session in spring at model sponsor headquarters or on site. Staff specialists train through demonstration, role-playing and discussion. Year round on-site training.

SE

- Training of Teaching Staff

  Pre-service--One-week session for teachers, aides conducted by site coordinator on site. SEDL project. Staff assists site coordinator. Teaching staff is taught philosophy, rationale, methodology of the model as a whole, as well as ways to fit it into the local site. Workshops, observation in classrooms, classroom demonstrations, lectures, discussions, video tape presentations used in training.

In-service--Weekly one-hour sessions conducted by site coordinator. Yearly schedule of topics used, each meeting devoted to the scheduled topic, and to site problems or concerns.

- Monitoring Teaching Staff--Site coordinator, site service specialist observe in classroom, confer with teacher afterward. Site service specialist reviews progress of implementation monthly with site coordinator, FT director.

- Sponsor-Based Representative

  Responsibilities--Site service specialist makes regular site visits, trains site coordinator, works with teachers in classroom, submits monthly report.

  Contact with Site--Five days per month.

- Local Representative

  Responsibilities--Site coordinators train, supervise teaching staff. Conduct pre-service, in-service training as well as provide ongoing evaluation, assistance to teachers, aides. Each deals with 30 teachers, aides. Site coordinators also coordinate other FT components, i.e., health services, parent involvement.

  Contact with Teaching Staff--Should spend 1-1/2 hours a week in classrooms, hold hour-long training meetings weekly.

  Training--Three-week summer session at Southwest Lab. Trained in philosophy, rationale and methodology of the model, as well as the skills requisite to implementation. Ongoing training received from site service specialist.

Appendix L

MEANS AND STANDARD DEVIATIONS OF FOLLOW THROUGH PROGRAM SPONSORS AND NON-FOLLOW THROUGH PROGRAMS ON CLASSROOM OBSERVATION VARIABLES

MEANS AND STANDARD DEVIATIONS OF FOLLOW THROUGH PROG
AND NON-FOLLOW THROUGH PROGRAMS ON CLASSROOM OBSERVAT
(CHILD-FOCUSED OBSERVATIONS)

VARIABLE \ SPONSOR	Far West Lab (FW)		U. Arizona (UA)		Bank Street (BC)		U. Georgia (UG)		U. Oregon (UO)		U. Kansas (UK)		High/Scope (HS)		U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
(Number of Classrooms)	(12)		(12)		(12)		(12)		(12)		(10)		(16)		(12)		(12)		(12)	
COP Variables																				
15. Adult/child ratio	.13	.04	.10	.02	.12	.01	.13	.02	.12	.03	.17	.02	.16	.04	.13	.04	.11	.04	.14	.05
16. Total class duration	4.65	1.60	6.0	0.0	6.0	0.0	6.0	0.0	6.0	0.0	5.85	.24	5.47	.89	6.0	0.0	5.04	1.25	5.0	1.48
17. Movable tables and chairs for seating	.92	.29	1.0	0.0	1.0	0.0	1.0	0.0	.58	.52	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
18. Stationary desks in rows	.08	.29	0.0	0.0	0.0	0.0	0.0	0.0	.67	.49	0.0	0.0	.06	.25	0.0	0.0	0.0	0.0	0.0	0.0
19. Assigned seating for at least part of the day	.54	.50	.92	.29	1.0	0.0	.33	.49	.92	.20	1.0	0.0	.06	.25	.75	.40	.67	.49	1.0	0.0
20. Children select their own seating locations	.92	.29	.33	.49	.25	.45	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	.96	.14	.75	.45	.42	.52
21. Teacher assigns children to groups	.75	.45	.96	.14	1.0	0.0	.96	.14	1.0	0.0	1.0	0.0	.94	.25	.83	.33	.54	.50	.88	.31
22. Children select their own work groups	.92	.29	.29	.45	.21	.40	.04	.14	0.0	0.0	0.0	0.0	.56	.51	.88	.23	.71	.45	.04	.14
23. Condition of playground equipment	.08	.29	.83	1.03	1.67	.78	0.0	0.0	2.0	0.0	1.7	.48	1.88	.50	.42	.67	1.08	.79	2.0	0.0
24. Playground activity directed by adults	1.10	.32	.08	.29	.75	.45	.58	.57	.58	.52	1.0	0.0	1.0	0.0	.92	.29	.64	.51	1.0	0.0
25. Is the school building in good condition?	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	.96	.14
26. Noise level	2.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0	1.96	.14	2.0	0.0	2.0	0.0
27. Lighting	.96	.14	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
28. Heating and ventilation	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	.95	.16	1.0	0.0	1.0	0.0	.96	.14	1.0	0.0
29. Children's own art on display	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
30. Photographs of the children on display	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	.75	.45	.96	.14	1.0	0.0
31. Pictures of various ethnic groups on display	.92	.29	1.0	0.0	.96	.14	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	.75	.45	1.0	1.0	1.0	0.0
32. Community events posted	1.0	0.0	1.0	0.0	.96	.14	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	.75	.45	.88	.31	1.0	0.0
33. Other	.92	.29	.58	.52	.96	.14	1.0	0.0	1.0	0.0	.55	.50	.69	.44	.83	.39	.96	.14	.67	.49
34. Single contained classroom	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	.80	.42	.94	.25	1.0	0.0	1.0	0.0	1.0	0.0
35. Open classrooms	1.0	0.0	.75	.45	1.0	0.0	1.0	0.0	.96	.14	.60	.52	.72	.45	.67	.49	1.0	0.0	1.0	0.0
36. Adequate space per child	1.0	0.0	1.0	0.0	.96	.14	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
37. Number of COP's	16.21	.33	16.0	0.0	15.92	.29	16.0	0.0	16.04	.14	16.0	.24	16.03	.13	15.96	.14	15.79	.58	16.08	.29

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*The computations of $\bar{X}$ and S.D. used the classroom as the unit of analysis. The value of a variable for a classroom was computed as follows:

Each OSF and CCL variable = frequency of occurrence/NCOP where: NCOP = number of COPs observed for the class
Each FMO variable = frequency of occurrence/WFRM NFRM = number of frames observed for the class

Underlining indicates subsets of no significant difference ($p = < .05$) among sponsors as determined by multiple range test, Newman/Keuls method; ♦indicates aggregate NFT means.

Appendix L-1

TANDARD DEVIATIONS OF FOLLOW THROUGH PROGRAM SPONSORS
OW THROUGH PROGRAMS ON CLASSROOM OBSERVATION VARIABLES*
(CHILD-FOCUSED OBSERVATIONS)

U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)		Interdependent Learning Model (IL)		Southwest Lab (SE)		F Ratio Among Sponsors		Ranking of Sponsors by Their Means	All FT		All NFT		F Ratio FT/NFT	
$\bar{Y}$	S.D.	$\bar{Y}$	S.D.	$\bar{Y}$	S.D.	$\bar{Y}$	S.D.	$\bar{Y}$	S.D.	11/134	Alpha p<	Low High	$\bar{Y}$	S.D.	$\bar{Y}$	S.D.	df 1/218	Alpha Level p<
(12)		(12)		(12)		(12)		(12)					(146)		(74)			
.13	.04	.11	.04	.14	.05	.13	.03	.13	.06									
6.0	0.0	5.04	1.25	5.0	1.48	5.17	.91	4.73	1.10									
1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.58	.52									
.75	.40	.67	.49	1.0	0.0	.92	.29	1.0	0.0									
.96	.14	.75	.45	.42	.52	.50	.52	0.0	0.0									
.83	.33	.54	.50	.88	.31	.92	.29	1.0	0.0									
.88	.23	.71	.45	.04	.14	.67	.49	.04	.14									
.42	.67	1.08	.79	2.0	0.0	.33	.78	.42	.52									
.92	.29	.64	.51	1.0	0.0	1.0	0.0	1.75	.45									
1.0	0.0	1.0	0.0	.96	.14	1.0	0.0	1.0	0.0									
1.96	.14	2.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0									
1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0									
1.0	0.0	.96	.14	1.0	0.0	1.0	0.0	1.0	0.0									
1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0									
.75	.45	.96	.14	1.0	0.0	.92	.29	1.0	0.0									
.75	.45	1.0	1.0	1.0	0.0	1.0	1.0	.92	.20									
.75	.45	.88	.31	1.0	0.0	.88	.31	.96	.14									
.83	.39	.96	.14	.67	.49	.63	.48	.75	.45									
1.0	0.0	1.0	0.0	1.0	0.0	.67	.49	1.0	0.0									
.67	.49	1.0	0.0	1.0	0.0	.92	.29	.58	.52									
1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0									
15.96	.14	15.79	.58	16.08	.29	16.0	0.0	15.58	.97									

llows:

e class
the class

s method; ↑ indicates aggregate NFT means.

Appendix L-1 (Continued)

SPONSOR / VARIABLES	Far West Lab (FW)		U. Arizona (UA)		Bank Street (BC)		U. Georgia (UG)		U. Oregon (UO)		U. Kansas (UK)		High/Scope (HS)		U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)	
	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.
CCL Variables																				
1. Snack, lunch	[illegible]	.06	.03	.04	.02	.03	.02	.03	0.0	0.0	.01	.02	.05	.05	0.0	0.0	.08	.14	.03	.04
2. Group time	.16	.08	.22	.15	.08	.10	.06	.07	.03	.04	.09	.14	.28	.12	.09	.10	.11	.09	.07	.05
3. Story, singing, dancing	.24	.17	.18	.13	.09	.10	.09	.08	.06	.07	.03	.04	.15	.14	.04	.05	.10	.08	.08	.08
4. Arithmetic, numbers, math	.34	.14	.32	.17	.47	.25	.40	.15	.81	.15	.78	.15	.36	.18	.33	.23	.51	.20	.40	.13
5. Reading, alphabet, language development	.52	.14	.50	.12	.62	.24	.65	.12	.95	.06	.84	.07	.46	.17	.65	.15	.64	.19	.36	.19
6. Social studies, geography	.03	.06	.02	.04	.12	.21	.01	.01	0.0	0.0	0.0	0.0	.02	.06	.01	.01	.02	.06	.06	.05
7. Science, natural world	.02	.03	.09	.16	.01	.02	.07	.09	.003	.01	.01	.02	.11	.12	.07	.11	.07	.14	.03	.04
8 Guessing games, table games, puzzles	.15	.17	.07	.11	.04	.06	.03	.05	.01	.03	.03	.03	.09	.08	.09	.12	.22	.22	.05	.07
9. Arts, crafts	.35	.18	.25	.22	.11	.13	.12	.11	.05	.10	.10	.14	.22	.18	.56	.21	.50	.17	.20	.15
10. Sewing, cooking pounding, sawing	.01	.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.01	.02	0.0	0.0	.06	.10	.01	.0
11. Blocks, trucks	.15	.22	.02	.04	.07	.17	.002	.01	0.0	0.0	.003	.01	.05	.06	.002	.01	.39	.24	.04	.0
12. Dolls, dress-up	.13	.15	.03	.07	.01	.02	.002	.01	0.0	0.0	.01	.02	.04	.06	0.0	0.0	.17	.17	.01	.03
13. Active play	.01	.03	0.0	0.0	0.0	0.0	0.0	0.0	.002	.01	.03	.04	.01	.04	.002	.01	.20	.16	.05	.07
14. Wide variety of activites	2.15	.59	1.71	.36	1.62	.54	1.44	.31	1.92	.18	1.92	.14	1.84	.53	1.84	.44	3.06	.74	1.38	.32
15. Teacher with one child in any academic activity	.08	.11	.04	.07	.12	.21	.01	.02	.08	.08	.03	.05	.06	.09	.03	.04	.06	.10	.35	.17
16. Teacher with two children in any academic activity	.05	.06	.01	.02	.03	.06	.02	.03	.01	.01	.01	.03	.05	.07	.05	.07	.05	.05	.01	.01
17. Teacher with small group in any academic activity	.25	.17	.25	.17	.41	.26	.52	.15	.52	.29	.71	.10	.45	.29	.52	.24	.26	.15	.10	.12
18. Teacher with large group in any academic activity	.09	.09	.09	.13	.13	.21	.18	.15	.24	.29	.01	.02	.05	.06	.18	.25	.08	.15	.21	.15
19. Aide with one child in any academic activity	.11	.09	.07	.13	.06	.10	.01	.02	.14	.14	.09	.27	.05	.08	.03	.03	.07	.08	.40	.19
20. Aide with two children in any academic activity	.04	.04	.02	.06	.003	.01	.14	.38	.19	.60	.03	.05	.02	.05	.08	.06	.04	.04	0.0	0.0
21. Aide with small group in any academic activity	.16	.12	.26	.16	.86	.37	.94	.38	.93	.57	.85	.40	.33	.22	.37	.31	.16	.17	.02	.03
22. Aide with large group in any academic activity	.01	.02	.06	.07	.23	.34	.27	.22	.17	.18	0.0	0.0	.01	.02	.03	.06	.05	.09	.01	.02
23. Volunteer with one child in any academic activity	.04	.08	.02	.06	.01	.02	.01	.03	0.0	0.0	.03	.05	.03	.08	.04	.09	.003	.01	.20	.22
24. Volunteer with two children in any academic activity	.02	.04	0.0	0.0	.01	.03	.01	.02	0.0	0.0	.02	.06	.01	.03	.01	.04	.01	.03	.01	.02
25. Volunteer with small group in any academic activity	.05	.08	.02	.05	.13	.21	.12	.20	0.0	0.0	1.74	.46	.06	.08	.11	.19	.02	.06	.03	.05
26. Volunteer with large group in academic activities	.02	.03	.02	.03	.09	.17	.02	.06	0.0	0.0	.02	.06	.002	.01	.002	.01	0.0	0.0	.03	.08
27. Academic activities	.91	.23	.92	.32	1.21	.55	1.12	.29	1.77	.17	1.63	.20	.95	.38	1.06	.28	1.25	.41	.84	.20
28. Use of textbooks, work books, and any sumbolic objects in any academic activity	.39	.18	.24	.16	.68	.18	.60	.11	.93	.08	.82	.07	.20	.12	.71	.17	.16	.18	.54	.23
29. Use of language experience charts in Activity 5	.12	.20	.01	.05	.02	.04	.01	.01	0.0	0.0	.003	.01	.03	.04	.45	.30	.19	.26	.03	.08
30. Use of tapes, records, films or TV in any academic activity	.08	.08	.04	.05	.08	.14	.09	.11	0.0	0.0	0.0	0.0	.07	.06	.40	.22	.02	.05	.06	.10
31. Use of games in Activities 4 and 5	.20	.16	.04	.09	.04	.10	.11	.15	.001	.01	.03	.08	.08	.10	.21	.26	.10	.13	.07	.07

Appendix L-1 (Continued)

U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)		Interdependent Learning Model (IL)		Southwest Lab (SE)		F Ratio Among Sponsors		Ranking of Sponsors by Their Means	All FT		All NFT		F Ratio FT/NFT	
$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	df 11/134	Alpha p<	Low High	$\bar{X}$	S.D.	$\bar{X}$	S.D.	df 1/218	Alpha Level p<
0.0	0.0	.08	.14	.03	.04	.03	.03	.10	.07	3.58	.001	UF, UO, UK, BC, UG,¦IL, UA, UP, HS, FW, ED, SE	.04	.06	.03	.05	1.40	NS
.09	.10	.11	.09	.07	.05	.17	.07	.07	.07	8.11	.001	UO, UG, SE, UP, BC, UK, UF,¦ED, FW, IL, UA, HS	.12	.12	.09	.12	4.24	.05
.04	.05	.10	.08	.08	.08	.10	.07	.05	.05	4.86	.001	UK, UF, SE, UO, UP, BC,¦UG, IL, ED, HS, UA, FW	.10	.11	.08	.09	1.86	NS
.33	.23	.51	.20	.40	.13	.23	.13	.17	.18	13.99	.001	SE,¦IL, UA, UF, FW, HS, UP, UG, BC, ED, UK, UO	.42	.25	.24	.17	31.42	.001
.65	.15	.64	.19	.36	.19	.56	.18	.43	.18	13.05	.001	UP, SE, HS, UA, FW¦IL, BC, ED, UG, UF, UK, UO	.59	.22	.53	.22	3.39	.10
.01	.01	.02	.08	.06	.05	.01	.03	.05	.06	2.45	.01	UK, UO, UG, UF, IL, HS, UA, ED, FW,¦SE, UP, BC	.03	.08	.03	.07	.044	NS
.07	.11	.07	.14	.03	.04	.01	.02	.01	.02	2.66	.01	UO, BC, UK, SE, IL, FW, UP, UF,¦UG, ED, UA, HS	.04	.09	.06	.08	1.16	NS
.09	.12	.22	.22	.05	.07	.17	.12	.09	.13	3.95	.001	UO, UK, UG, BC,¦UP, UA, UF, SE, HS, FW, IL, ED	.08	.13	.04	.08	6.47	.05
.56	.21	.50	.17	.20	.15	.17	.18	.16	.17	11.00	.001	UO, UK, BC, UG,¦SE, IL, UP, HS, UA, FW, ED, UF	.33	.22	.15	.18	7.87	.01
0.0	0.0	.06	.10	.01	.01	.01	.02	.02	.08	2.62	.01	UF, UK, UO, UG, BC, UA, FW, UP, HS, IL,¦SE, ED	.01	.04	.01	.03	.28	NS
.002	.01	.39	.24	.04	.06	.07	.11	.06	.10	10.07	.001	UO, UF, UG, UK, UA,¦UP, HS, SE, BC, IL, FW, ED	.07	.15	.03	.08	4.37	.05
0.0	0.0	.17	.17	.01	.03	.06	.12	.05	.10	5.07	.001	UF, UO, UG, BC, UK,¦UP, UA, HS, SE, IL, FW, ED	.04	.10	.03	.08	.52	NS
.002	.01	.20	.16	.05	.07	.06	.10	.03	.05	9.26	.001	UG, BC, UA, UF, UO, FW, HS,¦UK, SE, UP, IL, ED	.03	.08	.01	.03	3.85	.05
1.84	.44	3.06	.74	1.38	.32	1.64	.53	1.28	.61	11.38	.001	SE.¦UP, UG, BC, IL, UA, UF, HS, UO, UK, FW, ED	1.81	.64	1.34	.43	33.31	.001
.03	.04	.06	.10	.35	.17	.07	.08	.01	.02	10.02	.001	UG, SE, UK, UF, UA,¦ED, HS, IL, UO, FW, BC, UP	.08	.13	.05	.10	2.43	NS
.05	.07	.05	.05	.01	.01	.05	.06	.01	.02	2.43	.01	UP, SE, UO,¦UK, UA, UG, BC, ED, UF, FW, IL, HS	.03	.05	.02	.05	3.80	.10
.52	.24	.26	.15	.10	.12	.32	.19	.12	.14	9.29	.001	UP, SE,¦UA, FW, ED, IL, BC, HS, UF, UO, UG, UK	.37	.26	.17	.17	35.70	.001
.18	.25	.08	.15	.21	.15	.05	.05	.29	.22	3.14	.001	UK, HS, IL, ED, FW, UA, BC,¦UG, UF, UP, UO, SE	.13	.18	.39	.23	80.53	.001
.03	.03	.07	.08	.40	.19	.06	.11	.01	.01	9.30	.001	SE, UG,¦UF, HS, BC, IL, UA, ED, UK, FW, UO, UP	.09	.15	.01	.02	20.97	.001
.08	.06	.04	.04	0.0	0.0	.04	.05	0.0	0.0	.98	NS	SE, UP, BC,¦HS, UA, UK, ED, FW, IL, UF, UG, UO	.05	.21	.00	.01	3.78	.10
.37	.31	.16	.17	.02	.03	.27	.19	.11	.16	17.37	.001	UP,¦SE, FW, ED, UA, IL, HS, UF, UK, BC, UO, UG	.43	.43	.03	.08	60.30	.001
.03	.06	.05	.09	.01	.02	.04	.06	.09	.09	5.65	.001	UK, HS, UP, FW,¦UF, IL, ED, UA, SE, UO, BC, UG	.08	.16	.02	.07	10.25	.01
.04	.09	.003	.01	.20	.22	.03	.05	.003	.01	5.30	.001	UO, SE, ED, UG, BC,¦UA, UK, IL, HS, FW, UF, UP	.03	.10	.02	.07	1.61	NS
.01	.04	.01	.03	.01	.02	.02	.03	0.0	0.0	.75	NS	SE, UO, UA, UG, UP, BC,¦ED, UF, HS, FW, UK, IL	.01	[illegible]	.01	.02	.15	NS
.11	.19	.02	.06	.03	.05	.18	.17	.04	.14	79.71	.001	UO, UA, ED, UP,¦SE, FW, HS, UF, UG, BC, IL, UK	.18	.46	.04	.11	7.31	.01
.002	.01	0.0	0.0	.03	.08	.04	.06	.03	.05	1.76	.10	ED, UO, HS, UF, UA,¦FW, UK, UG, SE, UP, IL, BC	.02	.07	.02	.06	.32	NS
1.06	.28	1.25	.41	.84	.20	.81	.26	.67	.18	12.74	.001	SE, IL, UP,¦FW, UA, HS, UF, UG, BC, ED, UK, UO	1.08	.43	.86	.31	14.85	.001
.71	.17	.16	.18	.54	.23	.46	.23	.26	.21	29.75	.001	ED, HS, UA, SE, FW, IL¦UP, BC, UG, UF, UK, UO	.50	.30	.47	.28	.40	NS
.45	.30	.19	.26	.03	.08	.09	.10	.03	.04	11.06	.001	UO, UK, UG, UA, BC, HS, SE, UP,¦IL, FW, ED, UF	.08	.18	.05	.15	1.76	NS
.40	.22	.02	.05	.06	.10	.09	.08	.04	.06	13.39	.001	UK, UO, ED, SE, UA,¦UP, HS, FW, BC, IL, UG, UF	.08	.14	.04	.10	5.03	.05
.21	.26	.10	.13	.07	.07	.31	.20	.04	.04	5.62	.001	UO, UK,¦SE, BC, UA, UP, HS, ED, UG, FW, UF, IL	.10	.16	.04	.08	11.36	.001

Appendix L-1 (Continued)

SPONSOR / VARIABLES	Far West Lab (FW)		U. Arizona (UA)		Bank Street (BC)		U. Georgia (UG)		U. Oregon (UO)		U. Kansas (UK)		High/Scope (HS)		U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
32. Use of concrete objects in Activities 4 and 6	.06	.05	.04	.10	.09	.12	.23	.23	0.0	0.0	.23	.31	.22	.15	.26	.18	.02	.04	.18	.15
33. Use of science equipment, plants and animals	.35	.14	.27	.16	.47	.25	.39	.15	.81	.15	.79	.16	.33	.18	.34	.22	.48	.19	.39	.13
34. Children working independently in any academic activity	4.16	2.39	4.24	1.88	5.89	3.39	2.54	1.60	6.10	2.37	1.80	2.14	2.43	2.23	12.34	5.68	6.04	3.58	7.76	3.81
35 Any adult (T,A,V) with one child in any activity	.10	.11	.06	.09	.12	.21	.02	.03	.08	.08	.03	.05	.07	.09	.03	.03	.08	.11	.36	.17
36. Any adult (T,A,V) with two children in any activity	.06	.06	.02	.03	.04	.06	.02	.03	.01	.01	.02	.03	.06	.08	.05	.06	.09	.09	.01	.01
37. Any adult (T,A,V) with small group in any activity	.28	.16	.29	.17	.49	.29	.54	.16	.52	.29	.71	.10	.55	.34	.52	.24	.34	.18	.12	12
38. Any adult (T,A,V) with large group in any activity	.30	.14	.33	.14	.23	.26	.26	.14	.24	.29	.03	.03	.29	.18	.24	.26	.15	.16	.33	.15
39. Teacher with one child in any activity	.10	.11	.06	.09	.12	.21	.02	.02	08	.08	.03	.05	.07	.09	.03	.03	.08	.11	.36	.17
40. Teacher with two children in any activity	.06	.06	.02	.03	.04	.06	.02	.03	.01	.03	.02	.03	.06	.08	.05	.06	.08	.09	.01	.01
41. Teacher with small group in any activity	.28	.16	.28	.17	.48	.30	.54	.17	.52	.29	.71	.10	.55	.34	.52	.24	.34	.18	.12	.12
42. Teacher with large group in any activity	.29	.14	.33	.14	.22	.26	.26	.14	.24	.29	.02	.03	.29	.18	.24	.26	.14	.16	.33	.15
43. Aide with one child in any activity	.14	.08	.08	.13	.06	.09	.01	.02	.15	.14	.09	.27	.08	.09	.04	.03	.09	.09	.40	.18
44. Aide with two children in any activity	.06	.06	.03	.07	.01	.01	.15	.38	.13	.60	.04	.05	.04	.05	.08	.07	.08	.08	.01	.01
45. Aide with small group in any activity	.23	.12	.30	.16	1.01	.44	1.00	.40	.93	.57	.86	.40	.45	.26	.46	.33	.23	.18	.02	.04
46. Aide with large group in any activity	.05	.04	.18	.17	.30	.37	.32	.23	.19	.17	.01	.02	.08	.10	.04	.07	.09	.10	.01	.02
47. Teacher without children	.25	.16	.35	.17	.16	.27	.15	.10	.13	.10	.21	.07	.40	.20	.15	.12	.33	.12	.20	.16
48. Aide without children	.61	.20	.41	.17	.39	.17	.28	.12	.34	.17	.14	.07	.74	.37	.89	.43	.41	.18	.14	.15
49. One child engaged in any activity without adult	1.59	.57	.50	.57	.42	.63	.37	.28	.55	.48	.40	.72	1.00	.65	1.93	1.14	1.41	.55	.81	.50
50. Two children engaged in any activity without adult	.35	.38	.23	.22	.31	.48	.13	.08	.04	.08	.05	.10	.35	.23	.87	.52	1.37	.67	.44	.30
51. Small group without adult in any activity	.94	.48	1.17	.58	1.10	.69	.56	.25	.80	.24	.53	.43	.46	.29	2.23	.93	1.96	.73	1.32	.90
52. Large group without adult in any activity	.13	.09	.10	.11	.12	.13	.06	.08	.33	.24	.03	.06	.16	.16	.10	.10	.20	.15	.23	.27
53. Number of adults in classroom	2.35	.64	1.89	.32	3.11	.39	2.90	.37	2.61	.56	4.17	.79	2.87	.46	2.33	.45	1.97	.32	2.46	.67
61. Number of frames	81.69	6.90	88.64	7.70	79.04	8.59	86.37	5.04	80.25	1.97	66.05	3.05	72.01	6.13	80.12	5.57	68.77	6.71	74.06	7.35
PMO Variables																				
1. Child talking to adult	2.48	1.08	2.14	1.53	3.61	2.49	3.34	1.07	8.98	2.05	2.80	1.15	3.93	1.31	1.90	.94	2.21	1.62	3.32	1.19
2. Child initiating interaction with adult	1.58	1.15	1.43	1.24	2.46	1.79	2.37	1.15	3.49	1.57	3.70	2.00	1.56	.77	1.12	.58	1.76	1.47	2.52	1.08
3. Child initiating interaction with teacher	.78	.62	.70	.72	1.07	1.25	.91	.80	1.63	1.03	1.23	1.12	.88	.82	.44	.37	1.05	.97	1.50	.98
4. Child initiating interaction with aide	.46	.33	.68	.97	1.24	1.24	1.34	1.01	1.81	1.40	.94	.78	.54	.44	.66	.36	.63	.89	.57	.62
5. Child talking to other children	4.00	1.72	4.03	2.25	3.41	1.50	1.96	1.23	1.06	1.03	1.71	.78	4.10	.36	4.27	.89	3.74	1.50	2.97	1.02
6. Other children talking to child	2.74	1.15	2.32	1.66	2.85	1.43	1.27	.73	.48	.40	1.33	.75	2.87	1.49	2.91	1.25	1.39	.80	1.60	.70

Appendix L-1 (Continued)

. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)		Interdependent Learning Model (IL)		Southwest Lab (SE)		F Ratio Among Sponsors		Ranking of Sponsors by Their Means	All FT		All NFT		F Ratio FT/NFT	
Ȳ	S.D.	Ȳ	S.D.	Ȳ	S.D.	Ȳ	S.D.	Ȳ	S.D.	df 11/134	Alpha p<	Low High	Ȳ	S.D.		S.D.	df 1/218	Alpha Level p<
.26	.18	.02	.04	.18	.15	.01	.02	.06	.12	5.75	.001	UO, IL, ED,ǀUA, FW, SE, BC, UP, HS, UG, UK, UF	.12	.17	.03	.08	16.28	.001
.34	.22	.48	.19	.39	.13	.23	.13	.18	.18	14.83	.001	SE, IL,ǀUA, HS, UF, FW, UG, UP, BC, ED, UK, UO	.41	.25	.25	.15	27.41	.001
.34	5.68	6.04	3.58	7.76	3.81	6.35	4.35	1.15	.75	11.84	.001	SE, UK, HS, UG, FW, UA,ǀBC, ED, UO, IL, UP, UF	5.04	4.22	5.04	4.32	.00	NS
.03	.03	.08	.11	.36	.17	.08	.10	.02	.03	9.11	.001	UG, SE, UF, UK, UA,ǀHS, UO, ED, IL, FW, BC, UP	.09	.13	.07	.12	.89	NS
.05	.06	.09	.09	.01	.01	.06	.06	.01	.02	3.22	.001	SE, UO, UP, UK, UG, UA,ǀBC, UF, FW, IL, HS, ED	.04	.06	.03	.05	2.14	NS
.52	.24	.34	.18	.12	.12	.45	.20	.20	.21	6.93	.001	UP,ǀSE, FW, UA, ED, IL, BC, UO, UF, UG, HS, UK	.42	.27	.18	.17	50.27	.001
.24	.26	.15	.16	.33	.15	.21	.18	.46	.19	3.50	.001	UK, ED, IL, BC, UF, UO, UG, HS, FW, UA, UP, SEǀ	.26	.21	.53	.24	76.94	.001
.03	.03	.08	.11	.36	.17	.08	.10	.02	.03	7.11	.001	UG, SE, UF, UK, UA,ǀHS, UO, ED, IL, FW, BC, UP	.09	.13	.07	.11	.93	NS
.05	.06	.08	.09	.01	.01	.06	.06	.01	.02	3.18	.001	SE, UO, UP, UK, UG, UA,ǀBC, UF, FW, IL, HS, ED	.04	.06	.03	.05	2.00	NS
.52	.24	.34	.18	.12	.12	.44	.21	.20	.21	6.78	.001	UP,ǀSE, FW, UA, ED, IL, BC, UO, UF, UG, HS, UK	.42	.27	.17	.17	49.77	.001
.24	.26	.14	.16	.33	.15	.21	.18	.45	.19	3.39	.001	UK, ED, IL, BC, UF, UO, UG, HS, FW, UA, UP, SEǀ	.26	.21	.53	.24	79.51	.001
.04	.03	.09	.09	.40	.18	.08	.11	.03	.04	8.52	.001	UG,ǀSE, UF, BC, IL, HS, UA, UK, ED, FW, UO, UP	.10	.15	.02	.04	23.83	.001
.08	.07	.08	.08	.01	.01	.06	.06	.01	.01	.90	NS	SE, UP,ǀBC, UA, UK, HS, FW, IL, ED, UF, UG, UO	.06	.21	.01	.03	5.09	.05
.46	.33	.23	.18	.02	.04	.36	.17	.22	.29	14.67	.001	UP,ǀSE, ED, FW, U[illegible]L, HS, UF, UK, UO, UG, BC	.50	.45	.05	.11	72.55	.001
.04	.07	.09	.10	.01	.02	.11	.18	.16	.09	4.99	.001	UK, UP,ǀUF, FW, HS, ED, IL, SE, UA, UO, BC, UG	.13	.18	.03	.10	17.54	.001
.15	.12	.33	.12	.20	.16	.24	.18	.37	.20	4.62	.001	UO, UG, UF, BC,ǀUP, UK, IL, FW, ED, UA, SE, HS	.25	.18	.19	.14	7.14	.01
.89	.43	.41	.18	.54	.15	.42	.13	.71	.23	10.45	.001	UK,ǀUG, UO, BC, UA, ED, IL, UP, FW, SE, HS, UF	.50	.30	.19	.30	55.18	.001
1.93	1.14	1.41	.55	.81	.50	.92	.72	.27	.22	8.91	.001	SE, UG, UK, BC, UA,ǀUO, UP, IL, HS, ED, FW, UF	.86	[illegible]	.54	.59	9.13	.01
.87	.52	1.37	.67	.44	.30	.90	.60	.13	.15	15.32	.001	UO, UK, UG, SE, UA,ǀBC, HS, UP, FW, UF, IL, ED	.48	.54	.29	.44	6.41	.05
2.23	.93	1.96	.73	1.32	.90	1.49	.71	.21	.21	13.37	.001	SE, HS, UK, UG,ǀUO, FW, BC, UA, UP, IL, ED, UF	1.05	.82	.62	.71	15.00	.001
.10	.10	.20	.15	.23	.27	.06	.07	.20	.14	3.85	.001	UK, IL, UG, UF, UA, BC, FW, HS, SE, ED, UP, UOǀ	.15	.16	.35	.29	45.68	.001
2.33	.45	1.97	.32	2.46	.67	2.60	.58	2.33	.75	13.47	.001	ǀUA, ED, UF, SE, FW, UP, IL, UO, HS, UG, BC, UK	2.61	.76	115.28	.001		
0.12	5.57	68.77	6.71	74.06	7.35	79.03	5.37	79.32	8.53									
1.90	.94	2.21	1.62	3.32	1.19	2.73	1.21	3.58	1.43	18.94	.001	UF, UA, ED,ǀFW, IL, UK, UP, UG, SE, BC, HS, UO	3.44	2.29	2.29	1.42	15.76	.001
1.12	.58	1.76	1.47	2.52	1.08	1.70	.73	1.46	1.00	4.96	.001	UF,ǀUA, SE, HS, FW, IL, ED, UG, BC, UP, UO, UK	2.06	1.43	1.41	1.14	11.63	.001
.44	.37	1.05	.97	1.50	.98	.98	.56	.84	.55	1.84	.10	UF, UA, FW, SE, HS, UG, IL, ED, BC,ǀUK, UP, UO	1.00	.87	1.17	1.08	1.67	NS
.66	.36	.63	.89	.57	.62	.47	.46	.47	.45	3.17	.001	ǀFW, IL, SE, HS, UP, ED, UF, UA, UK, BC, UG, UO	.81	.91	.13	.36	37.75	.001
.27	.89	3.74	1.50	2.97	1.02	4.23	.95	3.26	1.46	5.81	.001	UO, UK,ǀUG, UP, SE, BC, ED, FW, UA, HS, IL, UF	3.27	1.82	2.93	1.95	1.63	NS
2.91	1.25	1.39	.80	1.60	.70	3.14	1.15	1.63	.70	7.48	.001	UO, UG, UK, ED, UP, SE,ǀUA, FW, BC, HS, UF IL	2.08	1.35	1.91	1.46	.74	NS

Appendix L-1 (Continued)

VARIABLES / SPONSOR	Far West Lab (FW)		U. Arizona (UA)		Bank Street (BC)		U. Georgia (UG)		U. Oregon (UO)		U. Kansas (UK)		High/Scope (HS)		U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
7. Child not interacting with anyone	26.36	3.99	27.40	6.58	41.06	11.23	36.05	10.50	33.98	6.92	52.25	6.23	28.97	7.45	40.49	8.61	44.48	6.28	28.44	7.67
8. Child initiating interaction with different child	3.47	1.27	3.88	1.99	3.30	1.44	1.78	1.20	1.14	.98	1.62	.65	3.88	2.22	4.05	1.68	2.77	1.06	2.50	1.00
9. Different child initiating interaction with child	2.08	1.00	2.12	1.54	2.86	1.40	1.12	.65	.46	.38	1.21	.64	2.49	1.34	2.46	.80	1.22	.55	1.30	.57
10. Child initiating interaction with two children	.10	.09	.12	.22	.03	.05	0.00	0.00	.01	.02	0.00	0.00	.06	.09	0.00	.01	.73	.67	.09	.10
11. Two children initiating interaction with child	.01	.01	.03	.05	.01	.01	0.00	0.00	0.00	0.00	0.00	0.00	.01	.02	0.00	0.00	.18	.37	.01	.01
12. Child initiating interaction with small group	.30	.35	.13	.24	.11	.26	.03	.06	.01	.02	.10	.11	.17	.18	.07	.15	.60	.99	.25	.20
13. Child initiating interaction with a machine	.14	.32	.02	.06	0.00	0.00	.02	.06	0.00	0.00	0.00	0.00	.03	.07	.14	.26	.46	.86	.19	.45
14. Machine initiating interaction with a child	.11	.36	.60	1.76	.20	.64	.28	.94	0.00	0.00	0.00	0.00	.01	.02	.88	1.12	0.00	0.00	.03	.06
15. Child giving request or command	1.10	.59	.22	.16	.40	.27	.33	.33	.33	.19	1.76	1.09	.93	.41	.72	.48	.34	.59	1.71	1.37
16. Child asking direct question	1.53	.98	.56	.30	.40	.37	.70	.40	.27	.13	.67	.34	.84	.61	1.34	.99	.35	.22	.79	.22
17. Child asking open-ended question	.11	.21	.07	.17	0.00	0.00	0.00	.01	0.00	0.00	0.00	0.00	.02	.03	0.00	0.00	.01	.02	0.00	0.00
18. Child asking question	1.64	.98	.63	.35	.40	.37	.70	.41	.27	.13	.67	.34	.87	.61	1.34	.99	.35	.23	.79	.22
19. Child responding	4.32	1.30	1.82	.71	2.12	1.34	3.23	1.11	7.20	2.21	2.91	1.24	5.16	1.10	3.25	1.37	1.80	1.67	4.13	1.26
20. Child responding with academic theme	1.48	.99	.42	.34	.96	1.20	1.74	.58	5.04	1.39	1.82	.77	1.01	.66	1.68	1.05	.54	.69	1.69	.83
21. Child responding to adult open-ended question	.14	.18	.04	.08	.01	.04	0.00	.01	.07	.11	.01	.02	.22	.35	.02	.04	.03	.04	.01	.02
22. Child giving elaborated response to adult open-ended question	0.00	.01	0.00	.01	0.00	.01	0.00	0.00	.06	25.03	0.00	0.00	0.00	.01	0.00	0.00	.01	.01	0.00	0.00
23. Child instructing self	14.23	5.11	14.69	6.48	23.79	10.95	23.79	6.42	25.03	6.92	29.07	7.00	10.43	5.25	32.16	10.34	23.82	10.10	20.12	9.30
24. Child instructing self in adademic activity	9.18	5.42	10.52	5.70	19.63	11.58	16.99	7.64	21.16	6.66	25.39	7.91	5.49	4.00	25.12	11.48	10.58	7.91	14.80	10.95
25. Child instructing self by using objects	1.96	3.72	1.46	2.22	.58	1.24	1.00	1.97	.08	.29	1.98	1.33	3.12	2.89	3.88	4.24	5.62	6.34	2.86	2.57
26. Child instructing self in academic activity by using objects	.41	.59	.53	1.39	.79	1.54	2.09	2.46	.05	.67	1.14	1.67	1.38	1.53	1.62	1.42	1.34	1.92	1.34	1.79
27. Child instructing other children	.64	.59	.70	.88	.46	.51	.15	.32	.09	.09	.09	.11	.43	.51	.46	.48	1.04	.96	.46	.54
28. Other children instructing child	.16	.15	.13	.17	.08	.17	.03	.05	.02	.04	.09	.18	.12	.24	.08	.11	.10	.07	.03	.03
29. Child task-persistent in self-instruction	7.20	3.45	8.63	6.28	16.21	8.66	13.48	4.87	18.50	6.39	12.83	6.11	3.85	2.78	19.38	6.87	17.00	8.11	10.87	6.90
30. Child inattentive to teacher or machine instructing	.03	.07	.07	.13	.01	.03	0.00	.01	0.00	0.00	0.00	0.00	.01	.02	0.00	0.00	.10	.33	.02	.04
31. Child attentive to adult or machine	5.98	2.81	9.34	6.62	5.27	3.10	8.01	5.21	5.59	1.68	1.44	.85	3.67	2.07	4.44	4.73	.71	1.05	4.83	3.20
32. Child commenting to adult	.16	.19	.10	.11	.10	.12	.20	.21	.08	.09	.14	.11	.15	.13	.13	.10	.53	.69	.16	.13
33. Child commenting to other children	.90	.26	1.63	.88	1.54	.94	.84	.88	.25	.13	.74	.47	1.49	1.00	1.63	.96	1.73	.94	1.02	.38
34. Other children commenting to child	.45	.17	.75	.79	1.62	1.00	.63	.64	.13	.09	.54	.29	1.12	.65	1.15	.77	.83	.77	.50	.30
35. Child participating in general action	2.98	1.29	3.43	2.13	1.79	1.57	1.14	.43	.89	.61	1.24	1.40	2.39	.81	1.44	.86	8.49	5.21	2.12	1.50
36. Child giving praise	0.00	.01	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00	.03	.10	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00
37. Child giving acknowledgment	.60	.53	0.00	0.00	.01	.02	.01	.01	0.00	.01	.18	.28	.03	.04	.09	.11	.01	.01	.03	.04
38. Child making productive statement	1.81	1.60	2.60	1.78	2.71	2.17	2.02	1.87	1.09	1.38	.79	.51	4.26	2.40	1.97	1.49	1.01	1.09	1.62	.72

Appendix L-1 (Continued)

	U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)		Interdependent Learning Model (IL)		Southwest Lab (SE)		F Ratio Among Sponsors		Ranking of Sponsors by Their Means	All FT		All NFT		F Ratio FT/NFT	
	$\bar{Y}$	S.D.	$\bar{Y}$	S.D.	$\bar{Y}$	S.D.	$\bar{Y}$	S.D.	$\bar{Y}$	S.D.	df 11/134	Alpha p<	Low High	$\bar{Y}$	S.D.	$\bar{Y}$	S.D.	df 1/218	Alpha Level p<
5	40.49	8.61	44.48	6.28	28.44	7.67	32.62	5.80	27.26	6.48	13.19	.001	FW, SE, UA, UP, HS, IL, UO,↑UG, UF, BC, ED, UK	34.34	10.51	34.39	9.00	.01	NS
	4.05	1.68	2.77	1.06	2.50	1.00	3.78	.88	3.36	1.49	5.71	.001	UO, UK, UG, UP,↑ED, BC, SE, FW, IL, UA, HS, UF	3.00	1.67	2.71	1.86	1.39	NS
4	2.46	.80	1.22	.55	1.30	.57	2.93	.91	1.59	.70	8.05	.001	UO, UG, UK, ED, UP, SE,↑FW, UA, UF, HS, BC, IL	1.85	1.19	1.80	1.41	.07	NS
9	0.00	.01	.73	.67	.09	.10	.16	.21	.06	.07	10.02	.001	UK, UG, UF, UO, BC,↑HS, SE, UP, FW, UA, IL, ED	.11	.29	.05	.09	3.77	.10
2	0.00	0.00	.18	.37	.01	.01	.06	.07	0.00	.01	2.68	.01	UF, UK, UO, UG, SE, FW, UP, BC, HS, UA,↑IL, ED	.02	.12	.01	.02	1.47	NS
8	.07	.15	.60	.99	.25	.20	.31	.35	.02	.03	2.89	.01	UO, SE, UG, UF, UK, BC, UA,↑HS, UP, FW, IL, ED	.18	.37	.14	.29	.72	NS
7	.14	.26	.46	.86	.19	.45	.26	.85	.05	.16	1.54	NS	UK, UO, BC, UA, UG, HS,↑SE, FW, UF, UP, IL, ED	.11	.40	.03	.12	2.64	NS
2	.88	1.12	0.00	0.00	.03	.06	.24	.50	.03	.12	1.88	.05	ED, UK, UO, HS, UP, SE, FW,↑BC, IL, UG, UA, UF	.20	.73	.13	.63	.44	NS
1	.72	.48	.34	.59	1.71	1.37	.33	.25	.67	.42	9.00	.001	UA, UO, IL, UG, ED, BC,↑SE, UF, HS, FW, UP, UK	.73	.77	.50	.49	5.55	.05
1	1.34	.99	.35	.22	79	.22	.54	.36	.41	.34	6.67	.001	UO, ED, BC, SE, IL, UA,↑UK, UG, UP, HS, UF, FW	.70	.62	.59	.54	1.93	NS
3	0.00	0.00	.01	.02	0.00	0.00	.01	.02	.01	.04	2.40	.01	UP, UF, UK, UO, BC, UG,↑ED, IL, SE, HS, UA, FW	.02	.08	.01	.02	2.31	NS
1	1.34	.99	.35	.23	.79	.22	.54	.35	.42	.34	7.31	.001	UO, ED, BC, SE, IL,↑UA, UK, UG, UP, HS, UF, FW	.72	.64	.59	.55	2.37	NS
0	3.25	1.37	1.80	1.67	4.13	1.26	3.20	2.13	5.20	1.34	14.92	.001	↑ED, UA, BC, UK, IL, UG, UF, UP, FW, HS, SE, UO	3.75	2.08	3.07	1.64	5.99	.05
6	1.68	1.05	.54	.69	1.69	.83	1.36	.98	2.17	.89	21.04	.001	UA, ED, BC, HS,↑IL, FW, UF, UP, UG, UK, SE, UO	1.54	1.43	1.18	.95	6.34	.05
5	.02	.04	.03	.04	.01	.02	.01	.02	.13	.13	3.30	.001	UG, UP, IL, UK, BC, UF, ED,↑UA, UO, SE, FW, HS	.06	.15	.04	.07	1.26	NS
1	0.00	0.00	.01	.01	0.00	0.00	0.00	.01	0.00	.01	1.01	NS	UP, UF, UK, UG,↑HS, UA, FW, SE, IL, BC, ED, UO	.00	.02	.00	.01	1.49	NS
5	32.16	10.34	23.82	10.10	20.12	9.30	15.24	4.62	11.18	5.16	10.78	.001	HS, SE, FW, UA, IL,↑UP, UG, BC, ED, UO, UK, UF	19.91	9.99	19.96	8.38	.00	NS
0	25.12	11.48	10.58	7.91	14.80	10.95	10.00	6.83	6.58	4.57	9.50	.001	HS, SE, FW, IL, UA, ED,↑UP, UG, BC, UO, UF, UK	14.22	10.09	14.68	9.09	.11	NS
9	3.88	4.24	5.62	6.34	2.86	2.57	4.28	3.51	1.68	3.59	3.03	.01	UO, BC, UG, UA, SE,↑FW, UK, UP, HS, UF, IL, ED	2.41	3.47	1.95	2.92	.95	NS
3	1.62	1.42	1.34	1.92	1.34	1.79	.62	.98	.49	.72	1.97	.05	UO, FW, SE,↑UA, IL, BC, UK, UP, ED, HS, UF, UG	.99	1.53	.52	1.45	4.83	.05
1	.46	.48	1.04	.96	.46	.54	.72	.39	.30	.40	3.19	.01	UO, UK, UG, SE, HS, UP, UF, BC, FW, UA, IL, ED	.47	.59	.51	.66	.20	NS
4	.08	.11	.10	.07	.03	.03	.26	.22	.05	.07	2.48	.01	UO, UP, UG, SE, BC, UF, UK, ED, HS, UA,↑FW, IL	.10	.16	.15	.31	3.10	.10
78	19.38	6.87	17.00	8.11	10.87	6.90	6.06	3.39	4.65	3.28	11.26	.001	HS, SE, IL, FW, UA, UP,↑UK, UG, BC, ED, UO, UF	11.33	7.78	11.45	6.88	.01	NS
02	0.00	0.00	.10	.33	.02	.04	.07	.14	.07	.14	1.08	NS	UF, UK, UO, UG, HS, BC, UP, FW,↑SE, UA, IL, ED	.03	.12	.05	.17	.49	NS
07	4.44	4.73	.71	1.05	4.83	3.20	2.94	3.04	4.70	3.80	5.53	.001	ED, UK, IL, HS, UF, SE, UP, BC, UO,↑FW, UG, UA	4.76	4.14	5.77	3.77	3.09	.10
13	.13	.10	.53	.69	.16	.13	.25	.25	.36	.45	2.69	.01	UO, UA, BC, UF,↑UK, HS, FW, UP, UG, IL, SE, ED	.20	.29	.14	.19	2.38	NS
00	1.63	.96	1.73	.94	1.02	.38	1.52	.70	1.44	.99	4.18	.001	UO, UK, UG, FW, UP,↑SE, HS, IL, BC, UF, UA, ED	1.24	.87	1.22	1.04	.01	NS
65	1.15	.77	.83	.77	.50	.30	1.18	.50	.78	.68	5.16	.001	UO, FW, UP, UK, UG, UA, SE,↑ED, HS, UF, IL, BC	.82	.71	.79	.80	.08	NS
81	1.44	.86	8.49	5.21	2.12	1.50	4.17	1.13	2.35	1.89	13.31	.001	UO, UG, UK, UF, BC, UP,↑SE, HS, FW, UA, IL, ED	2.71	2.72	2.32	1.76	1.30	NS
01	0.00	0.00	0.00	0.00	0.00	0.00	.02	.02	.03	.05	1.61	NS	UP, ED, UF, UO, UG, BC,↑HS, UA, FW, IL, SE, UK	.01	.03	.00	.01	2.36	NS
04	.09	.11	.01	.01	.03	.04	.05	.06	.04	.06	11.18	.001	UA, UO, ED, UG, BC, HS, UP, SE, IL,↑UF, UK, FW	.08	.23	.07	.20	.24	NS
40	1.97	1.49	1.01	1.09	1.62	.72	3.73	1.26	5.95	5.05	6.28	.001	UK, ED, UO, UP, FW, UF, UG,↑UA, BC, IL, HS, SE	2.54	2.51	2.13	2.84	1.16	NS

Appendix L-1 (Continued)

SPONSOR / VARIABLES	Far West Lab (FW)		U. Arizona (UA)		Bank Street (BC)		U. Georgia (UG)		U. Oregon (UO)		U. Kansas (UK)		High/Scope (HS)		U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)	
	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.
39. Other children making productive statement to child	.35	.37	.98	.82	.96	1.02	.33	.50	.18	.25	.18	.17	.57	.35	.58	.48	.30	.36	.41	.30
40. Child giving corrective feedback	.13	.11	.02	.04	.01	.01	.02	.03	.03	.05	.24	.33	.31	.29	.09	.11	.05	.05	.09	.10
41. Child not responding	.80	.21	.22	.22	.32	.48	.14	.12	.46	.34	.30	.17	.61	.42	.26	.16	.33	.41	.34	.24
42. Child waiting	2.47	1.08	2.95	1.60	5.39	5.26	4.63	5.33	5.62	4.24	4.81	2.64	9.02	6.67	3.31	3.64	5.49	4.56	2.73	1.12
43. Child attentive	20.97	6 98	22.59	7.14	10.17	5.23	12.95	4.98	11.91	2.88	3.62	2.07	16.76	4.97	13.49	5.61	15.36	3.47	20.19	4.69
44. Child attentive to other children	7.22	2.51	6.43	4.82	2.38	2.64	2.51	2.53	4.70	2.41	1.18	1.92	6.60	3.05	4.58	4.15	8.32	4.22	7.15	2.20
45. Child attentive to adult	8.50	2.71	12.35	4.13	6.34	3.39	8.01	4.34	6.48	2.05	2.29	1.16	7.12	2.55	4.77	3.67	5.63	2.42	9.53	2.84
46. Child attentive to a machine	3.88	3.33	3.36	3.84	1.45	2.08	2.35	2.08	.69	1.62	0.00	0.00	2.92	2.92	3.54	3.02	.73	1.47	3.27	3.48
47. Child nonverbal	29.83	6.57	30.86	6.53	19.48	6.76	20.10	4.08	19.25	3.37	10.75	4.00	30.87	5.81	20.28	7.37	32.06	6.83	27.25	5.44
48. All child motion	5.73	2.02	5.38	2.70	3.62	1.48	2.38	.97	1.28	.64	2.03	1.66	4.55	1.66	3.26	1.54	11.75	6.12	4.11	2.75
49. Child happy	2.12	1.62	1.69	1.83	3.23	1.83	.44	.43	.25	.24	.80	.73	1.33	1.45	1.06	.70	2.28	1.89	.60	.47
50. Child showing positive behavior	2.60	1.89	2.03	2.12	4.19	2.36	.49	.45	.26	.25	1.01	1.00	1.53	1.52	1.32	.91	2.77	2.37	.72	.56
51. Other children showing positive behavior to child	.29	.32	.34	.36	.73	.53	.04	.04	.01	.03	.09	.13	.12	.08	.26	.25	.16	.21	.05	.07
52. Child showing negative behavior	.27	.35	.62	1.18	.23	.32	.10	.24	.04	.09	.21	.19	.35	.40	.21	.22	.29	.36	.05	.10
53. Any child or children showing negative behavior	.40	.40	.66	1.19	.29	.36	.11	.25	.04	.09	.26	.22	.47	.46	.34	.40	.38	.46	.07	.13
54. Other children negative to child	.08	.09	.03	.05	.07	.06	.01	.02	0.00	.01	.05	.07	.11	.09	.13	.18	.07	.08	.02	.03
55. Child giving positive touch	.10	.15	.35	.49	.15	.18	.01	.01	0.00	.01	.02	.04	.08	.08	.06	.10	.01	.02	.02	.03
56. Child giving negative touch	.06	.15	.22	.35	.04	.06	.01	.04	0.00	.01	.02	.04	.10	.08	.04	.12	.06	.09	.01	.03
57. Child engaged in task-related activity	13.90	6.99	12.95	6.02	24.15	11.67	23.45	4.85	23.48	6.76	32.58	6.92	9.61	5.98	31.82	11.05	13.96	9.20	19.46	10.90
58. Child cooperating with other children	.16	.37	.01	.03	.09	.19	.00	.01	.00	.01	.04	.11	.11	.16	.02	.06	.50	.80	.02	.04
59. Child sharing life experiences	.40	.59	.14	.20	.12	.15	.13	.26	.04	.08	.05	.09	.08	.14	.13	.19	.29	.43	.12	.12
60. Child showing imagination	.32	.77	.04	.08	.00	.00	.02	.06	.07	.16	.07	.15	.11	.23	.00	.00	.77	1.30	.26	.59
61. Adult interacting with one child	3.09	1.01	2.36	1.05	3.19	1.88	4.27	1.83	3.50	1.48	6.63	1.34	4.69	1.61	3.02	1.41	1.92	1.65	4.64	1.32
62. Adult interacting with two children	.09	.10	.01	.02	.05	.11	.01	.04	.02	.04	.03	.05	.18	.30	.04	.06	.22	.29	.12	.20
63. Adult interacting with small group	1.11	1.64	1.14	1.58	1.92	2.49	3.65	3.67	8.31	5.35	.99	.77	2.69	1.23	.92	.74	.72	.78	.42	.61
64. Adult interacting with large group	5.32	2.68	7.62	6.00	5.08	4.19	5.32	1.74	3.93	3.19	1.09	1.14	3.36	2.16	3.34	2.81	.79	1.31	5.39	2.41
65. Teacher interacting with one child	1.72	.53	1.47	.90	1.23	1.19	1.48	1.15	1.63	1.28	1.60	.94	2.97	1.32	1.56	.68	1.05	.89	2.83	1.23
66. Aide interacting with one child	.79	.52	.84	.83	1.70	1.25	2.59	1.44	1.79	.94	2.37	1.25	1.47	1.25	1.37	1.08	.76	1.12	1.23	.78
67. Aide interacting with two children	.01	.03	.01	.02	.01	.02	.00	.01	.01	.02	.02	.03	.08	.25	.00	.01	.04	.06	.01	.02
68. Teacher interacting with two children	.06	.08	.00	.00	.04	.11	.00	.00	.02	.04	.01	.01	.07	.14	.03	.06	.18	.27	.06	.10
69. Teacher interacting with small group	.54	.52	.88	1.11	1.43	2.19	1.46	1.23	3.09	.253	.09	.09	1.55	.98	.81	.63	.64	.70	.23	.22
70. Aide interacting with small group	.47	1.46	.25	.46	.40	.62	2.05	2.44	5.22	3.53	.13	.26	1.09	1.11	.11	.20	.09	.17	.02	.04
71. Teacher interacting with large group	4.24	1.59	4.99	4.17	3.84	4.47	3.19	2.10	2.29	2.25	.78	1.08	2.49	2.07	2.82	2.46	.59	.84	3.95	2.52
72. Aide interacting [illegible] large group	.05	.09	1.45	2.71	.60	1.24	1.90	1.93	1.40	1.65	.02	.04	.27	.38	.02	.04	.19	.51	.07	.21
73. Adult talking to child	2.37	1.19	1.61	.81	2.80	1.40	3.07	1.35	2.06	.83	5.71	1.25	4.44	1.57	2.64	1.40	1.50	1.02	3.92	1.28
74. Adult initiating interaction with child	1.69	.84	1.34	.71	1.93	1.04	2.48	1.23	1.84	.83	5.60	1.32	4.03	1.45	2.20	1.31	1.34	.99	3.66	1.28
75. Teacher initiating interaction with child	.82	.38	.72	.43	.66	.58	.77	.60	.78	.47	1.40	.93	2.49	1.11	1.14	.52	.84	.67	2.20	1.15
76. Aide initiating interaction with child	.46	.41	.58	.56	1.13	.84	1.61	1.21	.98	.59	2.05	1.10	1.31	1.14	.99	.94	.43	.54	1.04	.70
77. Adult giving request or command to children	1.46	.36	1.33	.90	.98	.61	2.00	.80	4.77	2.18	1.52	.81	1.79	.68	1.20	.50	.40	.35	2.14	.97

Appendix L-1 (Continued)

	U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)		Interdependent Learning Model (IL)		Southwest Lab (SE)		F Ratio Among Sponsors		Ranking of Sponsors by Their Means	All FT		All NFT		F Ratio FT/NFT	
	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	df 11/134	Alpha p<	Low — High	X̄	S.D.	X̄	S.D.	df 1/218	Alpha Level p<
5	.58	.48	.30	.36	.41	.30	1.12	.61	.41	.36	4.51	.001	UO, UK, ED, UG, FW, SE, UP, HS, UF, BC, UA, IL	.54	.59	.45	.54	1.19	NS
9	.09	.11	.05	.05	.09	.10	.13	.15	.23	.25	4.77	.001	BC, UG, UA, UO, ED, UP, UF, IL, FW, SE, UK, HS	.12	.19	.11	.21	.07	NS
2	.26	.16	.33	.41	.34	.24	.21	.15	.78	.53	5.65	.001	UG, IL, UA, UF, UK, BC, ED, UP, UO, HS, SE, FW	.40	.38	35	.36	1.08	NS
7	3.31	3.64	5.49	4.56	2.73	1.12	9.06	3.92	3.52	2.78	3.92	.001	FW, UP, UA, UF, SE, UG, UK, BC, ED, UO, HS, IL	5.03	4.51	5.44	6.03	.32	NS
7	13.49	5.61	15.36	3.47	20.19	4.69	14.02	2.42	13.49	3.45	13.00	.001	UK, BC, UO, UG, SE, UF, IL, ED, HS, UP, FW, UA	14.84	6.63	16.13	5.79	2.01	NS
	4.58	4.15	8.32	4.22	7.15	2.20	4.59	2.29	4.08	1.39	6.26	.001	UK, BC, UG, SE, UF, IL, UO, UA, HS, UP, FW, ED	5.07	3.58	5.40	3.42	.42	NS
5	4.77	3.67	5.63	2.42	9.53	2.84	6.86	3.93	8.19	3.45	7.00	.001	UK, UF, ED, BC, UO, IL, HS, UG, SE, FW, UP, UA	7.24	3.84	8.21	4.01	3.08	.10
2	3.54	3.02	.73	1.47	3.27	3.48	2.13	2.21	1.07	1.62	3.03	.01	UK, UO, ED, SE, BC, IL, UG, HS, UP, UA, UF, FW	2.17	2.75	2.15	2.90	.00	NS
1	20.28	7.37	32.06	6.83	27.25	5.44	30.00	4.21	22.50	5.80	15.53		UK, UO, BC, UG, UF, SE, UP, FW, IL, UA, HS, ED	24.80	8.32	25.98	8.17	1.01	NS
6	3.26	1.54	11.75	6.12	4.11	2.75	6.92	1.75	4.83	2.34	14.33		UO, UK, UG, UF, BC, UP, HS, SE, UA, FW, IL, ED	4.69	3.56	4.19	2.42	1.17	NS
5	1.06	.70	2.28	1.89	.60	.47	1.14	1.19	.91	.56	5.84		UO, UG, UP, UK, SE, UF, IL, HS, UK, FW, ED, BC	1.33	1.46	1.09	1.31	1 40	NS
2	1.32	.91	2.77	2.37	.72	.56	1.86	1.56	1.22	.85	6.49	.001	UO, UG, UP, UK, SE, UF, HS, IL, UA, FW, ED, BC	1.67	1.80	1.32	1.44	2.13	NS
8	.26	.25	.16	.21	.05	.07	.49	.52	.11	.10	7.33	.001	UO, UG, UP, UK, SE, HS, ED, UF, FW, UA, IL, BC	.22	.33	.19	.26	.38	NS
0	.21	.22	.29	.36	.05	.10	.07	.05	.27	.37	1.74	.10	UO, UP, IL, UG, UK, UF, BC, SE, FW, ED, HS, UA	.23	.44	.30	.96	.59	NS
6	.34	.40	.38	.46	.07	.13	.13	.10	.39	.52	1.82	.10	UO, UP, UG, IL, UK, BC, UF, ED, SE, FW, HS, UA	.30	.49	.36	1.00	.37	NS
9	.13	.18	.07	.08	.02	.03	.06	.05	.06	.08	2.78	.01	UO, UG, UP, UA, UK, IL, SE, BC, ED, FW, HS, UF	.06	.09	.05	.10	.14	NS
8	.06	.10	.01	.02	.02	.03	.14	.32	.13	.17	3.10	.01	UO, UG, ED, UP, UK, UF, HS, FW, SE, IL, BC, UA	.09	.21	.07	.12	.70	NS
8	.04	.12	.06	.09	.01	.03	.06	.08	.06	.11	2.42	.01	UO, UP, UG, UK, BC, UF, IL, FW, SE, ED, HS, UA	.06	.14	.03	.08	2.49	NS
8	31.82	11.05	13.96	9.20	19.46	10.90	14.51	8.14	9.68	5.41	11.57	.001	HS, SE, UA, FW, ED, IL, UP, UG, UO, BC, UF, UK	18.68	10.87	18.41	10.15	.03	NS
6	.02	.06	.50	.80	.02	.04	.17	.15	.05	.10	3.08	.01	UO, UG, UA, UP, UF, UK, SE, BC, HS, FW, IL, ED	.10	.29	.06	.27	.77	NS
4	.13	.19	.29	.43	.12	.12	.23	.16	.09	.11	2.04	.05	UO, UK, HS, SE, UP, BC, UG, UF, UA, IL, ED, FW	.15	.27	.11	.21	1.05	NS
3	.00	.00	.77	1.30	.26	.50	1.01	1.66	.18	.46	2.70	.01	UF, BC, UG, UA, UO, UK, HS, SE, UP, FW, ED, IL	.24	.73	.10	.31	2.47	NS
1	3.02	1.41	1.92	1.65	4.64	1.32	3.47	1.00	5.32	2.51	8.05	.001	ED, UA, UF, FW, BC, IL, UO, UG, UP, HS, SE, UK	3.83	1.95	2.72	1.63	17.62	.001
0	.04	.06	.22	.29	.12	.20	.22	.21	.10	.16	2.55	.01	UA, UG, UO, UK, UF, BC, FW, SE, UP, HS, ED, IL	.10	.18	.06	.15	1.58	NS
3	.92	.74	.72	.78	.42	.61	2.52	1.73	2.43	2.84	10.20	.001	UP, ED, UF, UK, FW, UA, BC, SE, IL, HS, UG, UO	2.26	3.03	.72	.96	18.30	.001
6	3.34	2.81	.79	1.31	5.39	2.41	4.51	2.61	10.96	6.62	7.21	.001	ED, UK, UF, HS, UO, IL, BC, UG, FW, UP, UA, SE	4.74	4.22	7.55	4.41	21.07	.001
2	1.56	.68	1.05	.89	2.83	1.23	2.03	.92	3.47	1.84	5.70	.001	ED, BC, UA, UG, UF, UK, UO, FW, IL, UP, HS, SE	1.95	1.32	2.31	1.38	3.50	.10
5	1.37	1.08	.76	1.12	1.23	.78	1.07	.91	1.31	.89	3.61	.001	ED, FW, UA, IL, UP, SE, UF, HS, BC, UO, UK, UG	1.43	1.16	.22	.51	74.11	.001
5	.00	.01	.04	.06	.01	.02	.04	.07	.03	.07	.94	NS	UG, UF, UA, UO, BC, UP, FW, UK, SE, ED, IL, HS	.02	.09	.00	.01	4.68	.05
4	.03	.06	.18	.27	.06	.10	.16	.21	.07	.11	2.59	.01	UG, UA, UK, UO, UF, BC, UP, FW, SE, HS, IL, ED	.06	.13	.05	.14	.09	NS
8	.81	.63	.64	.70	.23	.22	1.62	1.07	.99	.92	5.06	.001	UK, UP, FW, ED, UF, UA, SE, BC, UG, HS, IL, UO	1.14	1.41	.51	.71	12.90	.001
1	.11	.20	.09	.17	.02	.04	.52	.49	1.10	2.28	11.01	.001	UP, ED, UF, UK, UA, BC, FW, IL, HS, SE, UG, UO	.97	2.03	.13	.53	12.17	.001
7	2.82	2.46	.59	.84	3.95	2.52	3.39	2.53	8.00	4.22	5.87	.001	ED, UK, UO, HS, UF, UG, IL, BC, UP, FW, UA, SE	3.39	3.24	6.78	4.25	43.32	.001
8	.02	.04	.19	.51	.07	.21	.31	.47	2.09	2.24	4.26	.001	UK, UF, FW, UP, ED, HS, IL, BC, UO, UA, UG, SE	.70	1.47	.26	.94	5.40	.05
7	2.64	1.40	1.50	1.02	3.92	1.28	2.47	.93	2.85	1.54	10.93	.001	ED, UA, UO, FW, IL, UF, BC, SE, UG, UP, HS, UK	2.96	1.66	1.88	1.14	25.03	.001
5	2.20	1.31	1.34	.99	3.68	1.28	1.95	.56	2.37	1.40	14.64	.001	UA, ED, FW, UO, BC, IL, UF, SE, UG, UP, HS, UK	2.53	1.60	1.56	1.08	22.08	.001
1	1.14	.52	.84	.67	2.20	1.15	1.06	.42	1.45	.92	8.92	.001	BC, UA, UG, UO, FW, ED, IL, UF, UK, SE, UP, HS	1.23	.94	1.29	.93	.27	NS
4	.99	.94	.43	.54	1.04	.70	.66	.53	.72	.63	3.99	.001	ED, FW, UA, IL, SE, UO, UF, UP, BC, HS, UG, UK	.99	.90	.14	.37	60.36	.001
8	1.20	.50	.40	.35	2.14	.97	1.67	.57	4.46	1.54	21.36	.001	ED, BC, UF, UA, FW, UK, IL, HS, UG, UP, SE, UO	1.98	1.58	1.75	.98	1.35	NS

Appendix L-1 (Continued)

VARIABLES / SPONSOR	Far West Lab (FW)		U. Arizona (UA)		Bank Street (BC)		U. Georgia (UG)		U. Oregon (UO)		U. Kansas (UK)		High/Scope (HS)		U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (IP)		Interdep Learn Mode (IL
	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄
78. Adult asking direct question of children	1.18	1.00	.95	.79	1.36	.90	1.55	1.08	3.74	.96	.93	.42	2.00	.89	1.12	.65	.36	.40	1.74	.60	1.[illegible]
79. Adult asking open-ended question of children	.22	.27	.06	.08	.03	.08	.00	.01	.08	.11	.04	.06	.36	.52	.03	.07	.05	.08	.01	.03	.09
80. Adult responding to children	.40	.29	[illegible]	.18	.42	.30	.53	.32	.24	.11	.62	.30	.33	.13	.41	.26	.37	.70	.28	.12	.51
81. Adult instructing children	5.11	3.06	7.77	5.77	5.85	4.24	7.80	4.74	5.08	1.33	2.14	1.23	4.03	1.69	3.17	2.6[illegible]	1.06	.62	4.35	1.91	4.32
82. Adult instructing children in academic activity	3.10	2.02	3.65	3.57	2.54	2.45	4.61	3.93	3.72	1.08	1.45	1.13	1.40	.99	1.75	1.31	.34	.32	1.01	.70	2.92
83. Adult instructing children by using objects	.39	.64	.33	.78	.04	.12	.00	.00	.00	.00	.02	.06	.27	.38	.20	.43	.01	.02	.36	.63	.23
84. Adult instructing children in academic activity by using objects	.09	.11	.33	.76	.01	.04	.15	.32	.00	.00	.01	.03	.10	.20	.69	1.25	.05	.08	.09	.16	.16
85. Adult commenting to children	.04	.05	.02	.04	.08	.07	.06	.07	.02	.04	.06	.06	.13	.08	.06	.06	.11	.14	.23	.21	.29
86. Adult in motion	.14	.14	.08	.26	.10	.30	.03	.05	.02	.02	.24	.20	.11	.14	.05	.07	.07	.11	.21	.19	.48
87. Adult not interacting with children	.18	.28	.00	.01	.24	.42	.17	.32	.16	.24	.14	.13	.12	.13	.01	.02	.13	.31	.04	.11	.51
88. Adult praising children	.10	.11	.06	.10	.07	.07	.16	.14	.33	.36	1.21	1.01	.23	.16	.03	.04	.16	.15	.27	.22	.23
89. Adult praising children in task-related activity	.09	.11	.05	.08	.07	.07	.16	.14	.28	.31	.24	.20	.22	.16	.03	.04	.14	.14	.26	.22	.22
90. Adult praising children for behavior	.00	.01	.00	.01	.00	.00	.01	.01	.05	.10	.26	.21	.00	.01	.00	.01	.00	.01	.01	.01	.01
9 Adult giving specific praise to children	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.02	.00	.01	.01	.02	.01	.02	.00
92. Adult giving ackowledgment to children	.30	.15	.20	.18	.37	.35	.32	.25	.61	.62	.38	.42	.63	.45	.42	.40	.16	.13	.42	.18	.35
93. Adult giving task-related acknowledgment to children	.23	.13	.18	.18	.35	.38	.32	.25	.60	.60	.35	.39	.59	.44	.41	.41	.10	.07	.41	.17	.32
94. Adult giving non-task-related acknowledgment to children	.07	.06	.00	.01	.00	.01	.00	.00	.00	.00	.03	.04	.04	.06	.01	.02	.06	.08	.01	.02	.03
95. Adult giving nonverbal acknowledgment to children	.02	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.02	.06	.00	.00	.03	.05	.00
96. Adult making productive statement to children	.06	.09	.14	.15	.26	.55	.15	.19	.05	.07	.21	.13	.10	.1[illegible]	.13	.10	.06	.05	.12	.11	.55
97. Adult giving children corrective feedback	.40	.27	.25	.25	.42	.44	.55	.44	.55	.30	1.36	.47	1.07	.30	.52	.31	.65	.71	.84	.53	1.23
98. Adult giving children positive corrective feedback for behavior	.16	.12	.10	.12	.1[illegible]	.13	.06	.07	.16	.17	.14	.11	.20	.16	.08	.07	.43	.57	.17	.15	.64
99. Adult giving children positive corrective feedback in task-related activity	.16	.21	.04	.05	.23	.36	.40	.35	.30	.25	1.10	.51	.55	.22	.30	.26	.01	.02	.62	.52	.40
100. Adult giving children corrective feedback in task-related activity	.13	.20	.04	.05	.19	.27	.34	.30	.13	.11	1.03	.47	.45	.15	.27	.27	.01	.02	.51	.38	.22
101. Adult giving children negative corrective feedback for behavior	.01	.02	.00	.02	.01	.01	.02	.04	.01	.03	.01	.02	.02	.04	.00	.02	.06	.07	.01	.04	.01
102. Adult giving children firm corrective feedback for behavior	.02	.04	.05	.10	.02	.04	.02	.05	.02	.05	.03	.06	.02	.02	.00	.02	.08	.10	.01	.02	.02
103. Adult giving children negative corrective feedback in task-related activity	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.02	.04	.00	.00	.00	.00	.00	.01	.00
104. Adult giving any feedback	.80	.36	[illegible]	.46	.86	.65	1.03	.74	1.49	1.[illegible]	2.95	1.22	1.93	.67	[illegible]	.67	.96	.91	1.53	.58	1.31
105. Adult giving children feedback for academic response to adult academic direct question	.07	.06	.06	.10	.14	.21	.22	.17	.46	.58	.15	.09	.22	.25	.22	.21	.02	.0[illegible]	.[illegible]1	.18	.10

Appendix L-1 (Continued)

U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (IP)		Interdependent Learning Model (IL)		Southwest Lab (SE)		F Ratio Among Sponsors		Ranking of Sponsors by Their Means	All FT		All NFT		F Ratio FT/NFT	
X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	df 11/134	Alpha p<	Low — High	X̄	S.D.	X̄	S.D.	df 1/218	Alpha Level p<
1.12	.65	.36	.40	1.74	.60	1.53	.58	1.91	.63	13.85	.001	ED, UK, UA, UF, FW ↓BC, IL, UG, UP, SE, HS, UO	1.55	1.10	1.30	.88	3.00	.10
.03	.07	.05	.08	.01	.03	.09	.11	.44	[illegible]	5.36	.001	UG, UP, BC, UF, UK, ED, UO, UA, IL,↓FW, HS, SE	.13	.26	.11	.16	.42	NS
.41	.26	.37	.70	.28	.12	.51	.12	.16	.14	2.47	.01	SE,↓IL, UO, UA, UP, HS, ED, FW, UF, BC, UG, UK	.35	.31	.17	.14	21.35	001
3.17	2.64	1.06	.92	4.35	1.91	4.32	2.28	7.55	3.36	5.67	.001	ED, UK, UF, HS, IL, UP, UO, FW, BC,↓SE, UA, UG	4.87	3.62	5.87	3.47	3.90	.05
1.75	1.31	.34	[illegible]	1.01	.70	2.92	1.78	4.50	2.80	5.24	.001	ED, UP, HS, UK, UF, BC, IL, FW,↓UA, UO, SE, UG	2.57	2.45	3.28	2.66	3.92	.05
.20	.43	.01	.02	.36	.63	.23	.37	.37	.71	1.54	NS	UO, UG, ED, UK, BC,↓UF, IL, HS, UA, UP, SE, FW	.19	.46	.18	.72	.01	NS
.69	1.25	.05	.08	.09	.16	.16	.19	.52	.58	2.56	.01	UO, UK, BC, ED, FW, UF,↓HS, UG, IL, UA, SE, UF	.18	.50	.09	.30	2.15	NS
.06	.06	.11	.14	.23	.21	.29	.38	.41	.46	4.81	.001	UA, UO, FW, UG, UK, UF, BC, ED,↓HS, UP, IL, SE	.13	.22	.13	.23	.00	NS
.05	.07	.07	.11	.21	.19	.48	.55	.43	.59	3.60	.001	UO, UG, UF, ED, UA, BC, HS, FW,↓UP, UK, SE, IL	.16	.31	.17	.28	.05	NS
.01	.02	.13	.31	.04	.11	.51	.66	.47	.58	2.87	.01	UA, UF, UP, HS, ED, UK, UO, UG,↓FW, BC, SE, IL	.18	.35	.17	.38	.02	NS
.03	.04	.16	.15	.27	.22	.23	.28	.31	.18	10.20	.001	UF, UA, BC, FW, ED,↓UG, HS, IL, UP, SE, UO, UK	.25	.41	.16	.29	3.00	.10
03	.04	.14	.14	.26	.22	.22	.28	.29	.17	3.35	.001	UF, UA BC, FW, ED,↓UG, IL, HS, UK, UP, UO, SE	.17	.19	.15	.28	.65	NS
.00	.01	.00	.01	.01	.01	.01	.02	.01	.03	14.85	.001	BC, UA, FW, ED, UF, HS, UP, UG,↓SE, IL, UO, UK	.03	.09	.01	.04	2.61	NS
.00	.01	.01	.02	.01	.02	.00	.01	.00	.00	1.12	NS	SE, UO, UG, BC, UA, FW, IL,↓UK, UF, HS, ED, UP	.00	.01	.00	.01	.17	NS
.42	.40	.16	.13	.42	.18	.35	.19	.41	.33	2.22	.05	ED, UA, FW, UG,↓IL, BC, UK, SE, UF, UP, UO, HS	.39	.35	.35	.41	.62	NS
.41	.41	.10	.07	.41	.17	.32	.17	.33	.24	2.67	.01	ED, UA, FW, UG, IL,↓SE, BC, UK, UF, UF, HS, UO	.35	.34	.33	.39	.30	NS
.01	.02	.06	.08	.01	.02	.03	.04	.08	.12	3.77	.001	UO, UG, UA, BC, UF, UP,↓UK, IL, HS, ED FW, SE	.03	.06	.02	.04	2.18	NS
.02	.06	.00	.00	.03	.05	.00	.00	.00	.01	2.29	.05	IL, ED, UK, UO, UG, BC, UA, HS, SE,↓FW, UF, UP	.01	.02	.00	.01	.82	NS
.13	.10	.06	.05	.12	.11	.55	.52	.23	.21	3.71	.001	UO, ED, FW, HS,↓UP, UF, UA, UG, UK, SE, BC, IL	.17	.27	.11	.15	3.46	.10
.52	.31	.65	.71	.84	.53	1.23	.79	1.74	1.51	6.42	.001	UA, FW, BC, UF, UG, UO,↓ED, UP, HS, IL, UK, SE	.80	.74	.64	.66	2.47	NS
.08	[illegible]	.43	.57	.17	.15	.64	.69	.39	.27	4.42	.001	UG, UG, UA, BC, UK, UO, FW, UP,↓HS, SE, ED, IL	.22	.33	.19	.30	.39	NS
.30	.26	.01	.02	.62	.52	.40	.27	.40	.24	10.58	.001	ED, UA, FW, BC,↓UF, UO, SE, IL, UG, HS, UP, UK	.37	.39	.23	.31	7.25	.01
.27	.27	.01	.02	.51	.38	.22	.15	.19	.09	14.85	.001	ED, UA, UO, FW, SE, BC, IL, UF, UG, HS, UP, UK	.29	.34	.15	.18	11.24	.01
.00	.02	.06	.07	.01	.04	.01	.03	.04	.06	2.55	.01	UF, UA, BC, UP, IL, UK, FW, UO, HS, UG,↓SE, ED	.02	.04	.03	.10	2.70	NS
.00	.02	.08	.10	.01	.02	.02	.02	.11	.24	1.54	NS	UF, UP, IL, FW, BC, UG, HS, UO, UK, UA,↓ED, SE	.03	.09	.05	.10	1.78	NS
.00	.00	.00	00	.00	.01	.00	.00	.00	.01	2.77	.01	IL, ED, UF, UK, UO, BC, UA, FW, UG,↓SE, UP, HS	.00	.01	.00	.01	[illegible]	NS
.97	.67	.96	.91	1.53	.58	1.81	1.11	2.45	1.78	7.38	.001	UA, FW, BC, ED, UF, UG,↓UO, UP, IL, HS, SE, UK	1.43	1.11	1.14	1.00	[illegible]	.10
.22	.21	.02	.06	.31	.18	.10	.09	.13	.14	3.48	.001	ED, UA, FW, IL,↓SE, BC, UK, UG, HS, UF, UP, UO	.18	.25	.13	.18	2.67	NS

Appendix L-x (Concluded)

SPONSOR / VARIABLE	Far West Lab (FW)		U. Arizona (UA)		Bank Street (BC)		U. Georgia (UG)		U. Oregon (UO)		U. Kansas (UK)		High/Scope (HS)		U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)		Interd Lea Mo (
	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄
106. Adult giving children feedback for academic response to adult open-ended question	.00	.01	.00	.00	.00	.00	.00	.00	.01	.03	.00	.00	.00	.01	.01	.03	.00	.01	.00	.01	.01
107. Adult not responding to children	.16	.13	.05	.09	.14	.15	.07	.04	.10	.09	.14	.12	.12	.09	.08	.07	.06	.06	.07	[illegible]	.06
108. Adult attentive to children	.15	.16	.01	.02	.09	.18	.00	.00	.00	.01	.01	.03	.06	.14	.12	.33	.11	.17	.04	.05	.16
109. All positive behavior	2.66	1.92	2.26	2.12	4.40	2.56	[illegible]	.53	.27	.25	1.07	1.03	1.57	1.54	1.35	.92	2.83	2.44	.97	.58	2.03
110. Adult showing positive behavior	.05	.07	.03	.08	.20	.33	.05	.10	.00	.01	.05	.05	.02	.04	.03	.05	.06	.15	.06	.07	.05
111. All negative behavior	.42	.40	.66	1.20	.30	.36	.14	.27	.05	.09	.27	.24	.49	.46	.34	.39	.44	.49	[illegible]	.13	.14
112. Adult showing negative behavior	.02	.03	.00	.02	.01	.01	.03	.05	.01	.03	.01	.02	.02	.04	.01	.02	.06	.07	.01	.04	.01
113 Adult giving child positive touch	.00	.00	.00	.01	.01	.02	.00	.01	.00	.00	.00	.00	.00	.01	.00	.00	.01	.04	.00	.00	.00
114. Adult giving child negative touch	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
115. Adult giving child punishing touch	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.02	.00	.01	.01	.02	.01	.02	.00
116. Academic events	17.75	6.83	17.55	7.48	26.91	11.96	29.64	5.87	3.30	7.14	34.02	7.17	10.94	6.48	35.00	10.47	14.39	9.23	20.93	10.70	18.76
117. Adult interacting with child or children in task-related activity	2.38	.88	1.60	.62	2.30	1.30	3.11	1.16	2.61	1.04	4.77	1.21	3.31	.81	2.29	1.10	1.36	1.35	3.35	1.01	2.62
118. Adult instructing children in nonacademic activity without using objects	1.52	1.23	3.36	3.55	3.06	2.95	2.94	2.09	1.34	1.11	.64	.87	2.24	1.31	.49	.79	.61	.89	2.85	1.84	.99
119. Everyone interacting	.08	.10	.63	1.14	.13	.41	.12	.33	.06	.22	.02	.05	.42	.46	.00	.06	.03	.07	.84	.32	.47
120. Adult interacting with adult	.34	.38	.02	.04	.30	.58	.45	.71	.01	.05	.03	.05	.14	.17	.03	.07	.06	.11	.06	.10	.61

Appendix -1 (Concluded)

rida F)	Educational Development Center (ED)		U. Pittsburgh (UP)		Interdependent Learning Model (IL)		Southwest Lab (SE)		F Ratio Among Sponsors		Ranking of Sponsors by Their Means	All NFT		All NFT		F Ratio FT/NFT	
S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	df 11/134	Alpha p<	Low High	X̄	S.D.	X̄	S.D.	df 1/218	Alpha Level p<
.03	.00	.01	.00	.01	.01	.01	.01	.02	1.20	NS	UK, UG, BC, UA, HS, UP, ED, FW, IL, UF, SE, UO	.00	.02	.00	.01	.17	NS
.07	.06	.06	.07	.11	.06	.08	.12	.11	1.71	.10	UA, ED, IL, UP, UG, UF, UO, SE, HS, UK, BC, FW	.10	.10	.10	.14	.16	NS
.33	.11	.17	.04	.05	.16	.28	.85	1.38	3.57	.001	UG, UO, UA, UK, UP, HS, BC, ED, UF, FW, IL, SE	.13	.47	.36	1.13	2.30	NS
.92	2.83	2.44	.97	.58	2.03	1.89	1.41	1.02	6.12	.001	UO, UG, UP, UK, UF, SE, HS, IL, UA, FW, ED, BC	1.79	1.88	1.41	1.48	2.21	NS
.05	.06	.15	.06	.07	.05	.06	.15	.15	2.42	.01	UO, HS, UF, UA, UK, UG, IL, FW, ED, UP, SE, BC	.06	.13	.04	.08	1.55	NS
.39	.44	.49	.08	.13	.14	.11	.43	.55	1.78	.10	UO, UP, UG, IL, UK, BC, UF, FW, SE, ED, HS, UA	.32	.50	.40	1.01	.61	NS
.02	.06	.07	.01	.04	.01	.03	.05	.06	2.54	.01	UA, UF, BC, UP, UK, UO, IL, FW, HS, UG, SE, ED	.02	.04	.02	.12	2.66	NS
.00	.01	.04	.00	.00	.00	.01	.02	.05	1.47	NS	UP, UF, UK, UO, FW, UA, IL, HS, UG, BC, ED, SE	.01	.02	.00	.01	.20	NS
.00	.00	.00	.00	.00	.00	.01	.00	.00	1.02	NS	SE, UP, ED, UF, HS, UK, UO, UG, BC, UA, FW, IL	.00	.00	.00	.00	.51	NS
.01	.01	.02	.01	.02	.00	.01	.01	.02	.85	NS	UO, UG, BC, UA, FW, IL, UK, UF, SE, UP, HS, ED	.00	.01	.00	.01	.01	NS
10.47	14.39	9.23	20.93	10.70	18.76	8.64	15.51	5.80	12.70	.001	HS, ED, SE, UA, FW, IL, UP, BC, UG, UO, UK, UF	22.41	11.46	22.35	10.63	.00	NS
1.10	1.36	1.35	3.35	1.01	2.62	.86	3.78	2.02	7.52	.001	ED, UA, UF, BC, FW, UO, IL, UG, HS, UP, SE, UK	2.78	1.41	2.06	1.27	13.65	.001
.79	.61	.89	2.85	1.84	.99	1.04	2.02	1.12	4.10	.001	UF, ED, UK, IL, UO, FW, SE, HS, UP, UG, BC, UA	1.87	1.98	2.28	1.97	2.12	NS
.00	.03	.07	.84	1.32	.47	.64	.80	.91	2.96	.01	UF, UK, ED, UO, FW, UG, BC, HS, IL, UA, SE, UP	.31	.68	.29	.73	.03	NS
.07	.06	.11	.06	.10	.61	.83	.58	.67	3.39	.001	UA, UO, UK, UF, UP, ED, HS, BC, FW, UG, SE, IL	.22	.46	.21	.50	.04	NS

Appendix L-2

MEANS AND STANDARD DEVIATIONS OF FOLLOW THROUGH PROGRA
AND NON-FOLLOW THROUGH PROGRAMS ON CLASSROOM OBSERVATIO
(ADULT-FOCUSED OBSERVATIONS)

SPONSOR / VARIABLES	Far West Lab (FW)		U. Arizona (UA)		Bank Street (BC)		U. Georgia (UG)		U. Oregon (UO)		U. Kansas (UK)		High/Scope (HS)		U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)	
	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.
(Number of Classrooms)	(12)		(12)		(12)		(12)		(12)		(10)		(16)		(12)		(12)		(12)	
OSF Variables																				
15. Adult/child ratio	.15	.05	.12	.06	.13	.03	.13	.02	.13	.03	.16	.02	.17	.05	.11	.03	.10	.04	.15	.05
16. Total class duration	4.56	1.45	5.94	.22	6.00	0.00	5.93	.16	6.00	0.00	5.78	.30	5.50	.89	6.00	0.00	5.15	1.08	5.00	1.48
17. Movable tables and chairs for seating	.92	.29	1.00	0.00	1.00	0.00	1.00	0.00	.58	.51	1.00	0.00	.97	.13	1.00	0.00	.96	.14	1.00	0.00
18. Stationary desks in rows	.08	.29	0.00	0.00	0.00	0.00	.08	.29	.67	.49	0.00	0.00	.06	.25	0.00	0.00	0.00	0.00	0.00	0.00
19. Assigned seating for at least part of the day	.38	.48	.71	.45	.92	.29	.42	.51	1.00	0.00	.90	.32	.16	.35	.71	.45	.46	.50	1.00	0.00
20. Children select their own seating locations	.92	.29	.33	.49	.33	.49	.75	.45	.42	.14	.10	.32	.91	.27	.75	.45	.71	.45	.33	.49
21. Teacher assigns children to groups	.88	.31	.83	.33	.96	.14	1.00	0.00	1.00	0.00	.90	.32	.97	.13	1.00	0.00	.63	.43	.71	.45
22. Children select their own work groups	.88	.31	.29	.45	.21	.40	0.00	0.00	0.00	0.00	0.00	0.00	.47	.50	.71	.45	.50	.48	.08	.19
23. Condition of playground equipment	.08	.29	.71	.92	1.67	.78	0.00	0.00	2.00	0.00	1.70	.48	1.50	.89	.71	.44	.96	.69	2.00	0.00
24. Playground activity directed by adults	.68	.46	.08	.29	.67	.65	.67	.98	.21	.40	1.00	0.00	.88	.34	.92	.29	.50	.50	1.00	0.00
25. Is the school building good condition?	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
26. Noise level	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	1.58	.47	1.96	.14	2.00	0.00
27. Lighting	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	.97	.13	1.00	0.00	1.00	0.00	1.00	0.00
28. Heating and ventilation	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
29. Children's own art on display	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	.90	.32	1.00	0.00	.92	.19	.96	.14	1.00	0.00
30. Photographs of the children on display	.79	.40	.88	.31	.96	.14	1.00	0.00	1.00	0.00	.90	.32	1.00	0.00	.33	.44	.92	.29	1.00	0.00
31. Pictures of various ethnic groups on display	.92	.19	.79	.40	1.00	0.00	1.00	0.00	1.00	0.00	.90	.32	1.00	0.00	.33	.44	.96	.14	1.00	0.00
32. Community events posted	.92	.19	.88	.31	.96	.14	.96	.14	.96	.14	.90	.32	.86	.29	.33	.44	.92	.29	1.00	0.00
33. Other	.67	.44	.21	.33	.83	.39	.83	.33	1.00	0.00	.65	.41	.75	.45	.50	.37	.86	.31	.67	.49
34. Single contained classroom	1.00	0.00	.96	.14	1.00	0.00	1.00	0.00	1.00	0.00	.85	.34	.94	.25	1.00	0.00	1.00	0.00	1.00	0.00
35. Open classrooms	.50	.43	.58	.42	1.00	0.00	1.00	0.00	.46	.50	.50	.47	.66	.47	.04	.14	.96	.14	1.00	0.00
36. Adequate space per child	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
37. Number of COP's	16.96	1.80	19.96	.14	18.50	1.90	19.12	2.72	20.00	0.00	19.05	1.26	19.08	1.30	20.00	0.00	16.58	2.32	17.33	2.41

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*The computations of $\bar{X}$ and S.D. used the classroom as the unit of analysis. The value of a variable for a classroom was computed as follows:

Each OSF and CCL variable = frequency of occurrence/NCOP where: NCOP = number of COPs observed for the class
Each FMO variable = frequency of occurrence/NFRM NFRM = number of frames observed for the class

Underlining indicates subsets of no significant difference (p = < .05) among sponsors as determined by multiple range test, Newman/Keuls method; indicates aggregate NFT means.

Appendix L-2

ARD DEVIATIONS OF FOLLOW THROUGH PROGRAM SPONSORS
HROUGH PROGRAMS ON CLASSROOM OBSERVATION VARIABLES*
(ADULT-FOCUSED OBSERVATIONS)

▼Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)		Interdependent Learning Model (IL)		Southwest Lab (SE)		F Ratio Among Sponsors		Ranking of Sponsors by Their Means	All FT		All NFT		F Ratio FT/NFT	
	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	df 11/134	Alpha p<	Low High	X̄	S.D.	X̄	S.D.	df 1/218	Alpha Level p<
(12)		(12)		(12)		(12)		(12)					(146)		(74)			
11	.03	.10	.04	.15	.05	.13	.04	.13	.06									
00	0.00	5.15	1.08	5.00	1.48	5.13	.88	4.88	1.19									
00	0.00	.96	.14	1.00	0.00	1.00	0.00	1.00	0.00									
00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.58	.51									
71	.45	.46	.50	1.00	0.00	.92	.29	1.00	0.00									
75	.45	.71	.45	.33	.49	.58	.51	.21	.40									
00	0.00	.63	.43	.71	.45	.83	.39	.92	.29									
71	.45	.50	.48	.08	.19	.71	.45	.08	.29									
71	.54	.96	.69	2.00	0.00	.46	.84	.50	.52									
92	.29	.50	.50	1.00	0.00	1.67	.39	1.75	.45									
00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00									
58	.47	1.96	.14	2.00	0.00	2.00	0.00	2.00	0.00									
00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	.96	.14									
00	0.00	1.00	0.00	1.00	0.00	.97	.10	.92	.19									
92	.19	.96	.14	1.00	0.00	1.00	0.00	1.00	0.00									
33	.44	.92	.29	1.00	0.00	.83	.33	1.00	0.00									
.33	.44	.96	.14	1.00	0.00	.92	.29	.96	.14									
.33	.44	.92	.29	1.00	0.00	.92	.29	1.00	0.00									
.50	.37	.86	.31	.67	.49	.50	.48	.83	.39									
.00	0.00	1.00	0.00	1.00	0.00	.71	.45	1.00	0.00									
.04	.14	.96	.14	1.00	0.00	.92	.29	.58	.51									
.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00									
.00	0.00	16.58	2.32	17.33	2.41	19.83	.44	17.92	2.09									

s:
ass
class
ethod;▼indicates aggregate NFT means.

Appendix L-2 (Continued)

SPONSOR / VARIABLES	Far West Lab (FW)		U. Arizona (UA)		Bank Street (BC)		U. Georgia (UG)		U. Oregon (UO)		U. Kansas (UK)		High/Scope (HS)		U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)	
	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.
CCL Variables																				
1. Snack, lunch	.07	.05	.05	.03	.07	.03	.05	.03	.05	.01	.03	.02	.05	.03	.01	.02	.10	.07	.03	.04
2. Group time	.13	.09	.17	.08	.04	.04	.04	.06	.03	.05	.10	.05	.10	.15	.20	.11	.11	.09	.11	.06
3. Story, singing, dancing	.18	.14	.14	.09	.08	.07	.07	.06	.01	.03	[illegible]	.03	.15	.10	.08	.09	.13	.09	.04	.05
4. Arithmetic, numbers, math	.29	.13	.41	.18	.40	.18	.36	.13	.73	.16	[illegible]	.17	.32	.16	.29	.12	.37	.21	.38	.08
5. Reading, alphabet, language development	.52	.12	.52	.16	.65	.16	.57	.13	.89	.06	.75	.08	.43	.19	.59	.13	.58	.13	.30	.18
6. Social studies, geography	.02	.04	.01	.02	.08	.18	.07	.09	0.00	0.00	.01	.02	.07	.16	.02	.04	.01	.02	.08	.06
7. Science, Natural world	.04	.07	.07	.16	.04	.03	.11	.12	0.00	0.00	.01	.02	.13	.15	.09	.11	.02	.04	.01	.02
8. Guessing games, table games, puzzles	.16	.15	.10	.11	.05	.05	.10	.14	0.00	0.00	.05	.04	.14	.13	.06	.11	.17	.13	.03	.04
9. Arts, crafts	.28	.22	.25	.19	.16	.19	.11	.15	.02	.03	.07	.10	.22	.13	.36	.20	.37	.24	.14	.12
10. Sewing, cooking, pounding, sawing	.02	.03	.01	.04	.02	.05	.01	.01	0.00	0.00	0.00	0.00	.03	.06	.01	.03	.04	.05	.01	.03
11. Blocks, trucks	.13	.24	.06	.07	.10	.23	.01	.02	0.00	.01	.02	.04	.05	.07	.01	.04	.38	.23	.05	.10
12. Dolls, dress-up	.15	.20	.03	.04	.01	.01	.02	.02	0.00	0.00	.01	.01	.05	.07	0.00	0.00	.23	.24	.05	.07
13. Active play	0.00	.01	0.00	.01	0.00	.01	0.00	.01	0.00	0.00	0.00	.01	.01	.03	0.00	0.00	.12	.11	.02	.06
14. Wide variety of activities	1.99	.72	1.83	.44	1.08	.61	1.51	.33	1.72	.18	1.76	.29	1.93	.69	1.74	.31	2.62	.96	1.32	.41
15. Teacher with one child in any academic activity	.09	.11	.05	.06	.11	.16	.05	.05	.04	.07	.03	.08	.10	.12	.03	.03	.06	.05	.34	.17
16. Teacher with two children in any academic activity	.07	.07	.02	.03	.02	.04	.01	.03	.01	.02	.03	.03	.05	.10	.05	.08	.04	.05	.32	.03
17. Teacher with small group in any academic activity	.18	.13	.30	.18	.35	.21	.47	.19	.58	.23	.61	.15	.41	.33	.47	.16	.23	.14	.11	.14
18. Teacher with large group in any academic activity	.14	.11	.11	.10	.21	.24	.23	.17	.19	.21	.03	.04	.04	.05	.15	.14	.12	.13	.26	.16
19. Aide with one child in any academic activity	.12	.10	.03	.05	.01	.04	.02	.05	.09	.08	.01	.03	.05	.08	.06	.07	.06	.11	.35	.15
20. Aide with two children in any academic activity	.07	.07	0.00	.01	.01	.02	.25	.47	.26	.59	.02	.03	.04	[illegible]	.04	.04	.02	.03	.01	.03
21. Aide with small group in any academic activity	.10	.08	.25	.23	.66	.37	.81	.25	[illegible]	.47	.65	.18	.28	.15	.29	.14	.13	.10	.02	.03
22. Aide with large group in any academic activity	.01	.02	.02	.05	.43	.49	.26	.18	.13	.15	.04	.06	.02	.03	.02	.04	.03	.04	.02	.03
23. Volunteer with one child in any academic activity	.06	.08	.01	.02	.01	.02	0.0	0.0	.02	.04	.02	.05	.02	.04	.004	.01	0.0	0.0	.26	.22
24. Volunteer with two children in any academic activity	.05	.04	.002	.01	0.0	0.0	0.0	0.0	0.0	0.0	.09	.12	.03	.06	.02	.04	0.0	.01	.22	.01
25. Volunteer with small group in any academic activity	.05	.07	.09	.21	.17	.25	.03	.10	0.0	0.0	1.36	.31	.07	.12	.08	.15	.03	.06	.03	.04
26. Volunteer with large group in any academic activity	.01	.01	0.0	0.0	.01	.02	.01	.03	0.0	0.0	.09	.30	.01	.01	0.0	0.0	.002	.01	.002	.01
27. Academic activity	.87	.16	1.01	.36	1.16	.35	1.11	.27	1.62	.19	1.44	.34	.95	.56	.89	.21	.98	.31	.83	.15
28. Use of textbooks, work books, and any symbolic objects in any academic activity	.35	.19	.23	.14	.58	.14	.54	.19	.85	.09	.67	.15	.16	.17	.47	.10	.18	.12	.41	.24
29. Use of language experience charts in Activity 5	.12	.15	.04	.06	.05	.10	.002	.01	.12	.25	.07	.16	.08	.09	.36	.22	.13	.14	.02	.03
30. Use of tapes, records, films or TV in any academic activity	.11	.08	.02	.03	.11	.11	.08	.08	0.0	0.0	.01	.01	.08	.07	.28	[illegible]	.06	[illegible]	.03	.03
31. Use of games in Activities 4 and 5	.10	.16	.06	.04	.03	.06	.10	.10	.01	.01	.01	.02	.09	.10	.15	[illegible]	.18	.13	.05	.06
32. Use of concrete objects in Activities 4 and 6	.06	.06	.05	.12	.13	.17	.19	.16	.04	.13	.18	.24	.16	.12	.18	.13	.05	.07	.11	.14

Appendix L-2 (Continued)

Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)		Interdependent Learning Model (IL)		Southwest Lab (SE)		F Ratio Among Sponsors		Ranking of Sponsors by Their Means	All Ft		All NFT		F Ratio FT/NFT	
	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	df 11/134	Alpha p<	Low … High	X̄	S.D.	X̄	S.D.	df 1/218	Alpha Level p<
01	.02	.10	.07	.03	.04	.05	.04	.11	.11	4.23	.001	UF, UK, UP, UG, UO, ↑IL, UA, HS, BC, FW, ED, SE	.055	.053	.047	.054	1.04	NS
20	.11	.11	.09	.11	.06	.14	.07	.06	.06	13.75	.001	UO, BC, UG, SE, UK, ↑ED, UP, FW, IL, UA, UF, HS	.122	.105	.102	.103	1.85	NS
06	.09	.13	.09	.04	.05	.12	.10	.06	.05	4.84	.001	UO, UK, UP, SE, UG, BC, UF, ↑IL, ED, UA, HS, FW	.093	.094	.083	.078	.71	NS
29	.12	.37	.21	.38	.08	.21	.12	.20	.12	12.97	.001	↑SE, IL, FW, UF, HS, UG, ED, UP, BC, UA, UK, UO	.379	.210	.192	.114	51.39	.001
59	.13	.58	.13	.36	.18	.58	.18	.49	.13	11.16	.001	UP, HS, ↑SE, FW, UA, UG, ED, IL, UF, BC, UK, UO	.571	.195	.471	.178	13.77	.001
02	.04	.01	.02	.08	.06	.03	.04	.08	.07	2.04	.05	UO, UA, ED, UK, UF, FW, IL, ↑UG, HS, SE, UP, BC	.042	.068	.037	.055	.135	NS
09	.11	.02	.04	.01	.02	.06	.11	.03	.07	2.43	.01	UO, UK, UP, ED, SE, ↑BC, FW, IL, UA, UF, UG, HS	.053	.099	.035	.055	1.94	NS
06	.11	.17	.13	.03	.04	.16	.11	.07	.11	3.32	.001	UO, UP, ↑BC, UK, UF, SE, UG, UA, HS, IL, FW, ED	.093	.114	.046	.089	10.60	.01
36	.20	.37	.24	.14	.12	.19	.18	.12	.10	5.38	.001	UO, UK, UG, ↑SE, UP, BC, IL, HS, UA, FW, UF, ED	.194	.189	.119	.131	9.31	.01
01	.03	.04	.05	.01	.03	.01	.02	.01	.03	1.40	NS	UK, UO, IL, UF, UG, UP, ↑UA, SE, FW, BC, HS, ED	.015	.036	.011	.040	.447	NS
01	.04	.38	.23	.05	.10	.08	.10	.05	.09	7.46	.001	UO, UG, UF, UK, ↑HS, UP, SE, UA, IL, BC, FW, ED	.079	.159	.039	.122	3.69	.05
00	0.00	.23	.24	.05	.07	.08	.12	.06	.09	4.93	.001	UF, UO, BC, UK, UG, UA, ↑HS, UP, SE, IL, FW, ED	.056	.121	.045	.111	.380	NS
00	0.00	.12	.11	.02	06	.07	.13	.03	.05	5.08	.001	UF, UO, UG, UA, UK, FW, BC, ↑HS, UP, SE, IL, ED	.022	.063	.007	.018	3.69	.05
74	.31	2.62	.96	1.32	.41	1.75	.65	[illegible]	.58	4.27	.001	↑UP, SE, UG, BC, UO, UF, IL, UK, UA, HS, FW, ED	1.773	.630	1.234	.487	41.44	.001
03	.03	.06	.05	.34	.17	.06	.07	.00	.01	10.47	.001	SE, UF, UK, UO, ↑UG, UA, IL, ED, FW, HS, BC, UP	.083	.122	.048	.072	4.96	.05
05	.08	.04	.05	.02	.03	.05	.06	.01	.02	1.71	.10	SE, UG, UO, ↑UA, BC, UP, UK, ED, HS, UF, IL, FW	.033	.057	.015	.036	6.33	.05
47	.16	.23	.14	.11	.14	.41	.20	.16	.18	7.93	.001	UP, ↑SE, FW, ED, UA, BC, HS, IL, UF, UG, UO, UK	.354	.245	.148	.139	45.15	.001
15	.14	.12	.13	.26	.16	.10	.09	.36	.23	4.71	.001	UK, HS, IL, UA, ED, FW, UF, UO, BC, UG, UP, SE↑	.160	.172	.404	.209	85.33	.001
.06	.07	.06	.11	.35	.15	.03	.05	.00	.01	17.17	.001	SE, UK, BC, ↑UG, IL, UA, HS, UF, ED, UO, FW, UP	.070	.116	.022	.049	11.87	.001
.04	.04	.02	.03	.01	[illegible]	.05	.08	.00	.00	2.09	.05	SE, UA, ↑BC, UP, UK, ED, HS, UF, IL, FW, UG, UO	.064	.228	.005	.024	4.83	.05
.29	.14	.13	.10	[illegible]	.23	.30	.21	.14	.22	19.72	.001	UP, ↑FW, ED, SE, UA, HS, UF, IL, UK, BC, UG, UO	.372	.363	.027	.062	65.78	.001
.02	.04	.03	.04	.02	.03	.02	.04	.13	.12	7.75	.001	FW, ↑UP, UA, UF, HS, IL, ED, UK SE, UO, UG, BC	.092	.200	.010	.048	12.26	.001
.004	.01	0.0	0.0	.26	.22	.03	.05	.01	.02	12.1[illegible]	.001	ED, UG, ↑UF, SE, BC, UA, UO, HS, UK, IL, FW, UP	.036	.096	.010	.033	5.11	.05
.02	.04	0.0	.01	.22	.01	.05	.03	0.00	0.00	3.[illegible]	.001	SE, UO, UG, BC, UA, ↑ED, UP, UF, HS, IL, FW, UK	.018	.049	.006	.022	4.23	.05
.06	.15	.03	.06	.03	.04	.15	[illegible]	.05	.15	57.73	.001	UO, ↑UP, ED, UG, SE, FW, HS, UF, UA, IL, BC, UK	.155	.363	.016	.052	10.75	.01
.0	0.0	.002	.01	.002	.01	.03	.05	.02	.05	2.05	.05	UF, UO, UA, UP, ED, HS, FW, UG, ↑BC, SE, IL, UK	.014	.060	.009	.033	.404	NS
.99	.21	.98	.31	.83	.15	.88	.28	.78	.14	7.84	.001	↑SE, UP, FW, IL, HS, ED, UF, UA, UG, BC, UK, UO	1.04	.373	.735	.239	42.68	.001
.47	.10	.18	.12	.41	.24	.44	.23	.20	.15	20.88	.001	HS, ED, SE, UA, FW, ↑UP, IL, UF, UG, BC, UK, UO	.413	.261	.407	.231	.031	NS
.36	.22	.13	.14	.02	.03	.18	.16	.04	.05	6.03	.001	UG, UP, UA, SE, ↑BC, UK, HS, FW, UO, ED, IL, UF	.100	.161	.046	.101	6.97	.01
.28	.19	.06	.08	.03	.03	.22	.14	.01	.02	11.35	.001	UO, UK, SE, UA, UP, ↑ED, UG, HS, FW, BC, IL, UF	.085	.130	.031	.057	13.59	.001
.15	.19	.18	.13	.05	.06	.32	.15	.06	.07	8.86	.001	UO, UK, BC, ↑UP, UA, SE, HS, UG, UF, ED, FW, IL	.106	[illegible]	.034	.061	19.30	.001
.18	.13	.05	.07	.11	.14	.02	.03	.06	.06	3.09	.01	IL, ↑UO, ED, UA, FW, SE, UP, BC, HS, UF, UK, UG	.103	.137	.028	.043	21.38	.001

Appendix L-2 (Continued)

VARIABLES / SPONSOR	Far West Lab (FW)		U. Arizona (UA)		Bank Street (BC)		U. Georgia (UG)		U. Oregon (UO)		U. Kansas (UK)		High/Scope (HS)		U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
33. Use of science equipment, plants and animals	.30	.12	.35	.19	.40	.18	.36	.12	.73	.16	.67	.17	.31	.16	.27	.11	.38	.21	.38	.09
34. Children working independently in any academic activity	3.36	1.57	4.22	1.09	4.10	2.68	2.23	1.20	3.70	2.30	1.67	1.69	2.13	2.85	9.13	2.31	4.38	3.47	7.81	2.82
35. Any adult (T,A,V) with one child in any activity	.10	.10	.06	.06	.12	.15	.08	.07	.04	.07	.04	.08	.12	.13	.04	.04	.09	.06	.35	.18
36. Any adult (T,A,V) with two children in any activity	.08	.08	.03	.03	.03	.05	.02	.04	.02	.02	.03	.04	.08	.12	.05	.08	.09	.06	.02	.03
37. Any adult (T,A,V) with small groups in any activity	.21	.13	.39	.18	.46	.29	.50	.20	.58	.23	.69	.16	.56	.29	.47	.16	.27	.14	.16	.15
38. Any adult (T,A,V) with large groups in any activity	.38	.11	.39	.11	.37	.29	.33	.15	.26	.20	.10	.08	.30	.15	.35	.16	.28	.18	.47	.16
39. Teacher with one child in any activity	.10	.10	.06	.06	.12	.15	.08	.07	.04	.07	.04	.09	.12	.13	.04	.05	.09	.06	.35	.18
40. Teacher with two children in any activity	.08	.08	.02	.03	.03	.04	.02	.04	.02	.02	.03	.04	.07	.12	.05	.08	.08	.06	.02	.03
41. Teacher with small group in any activity	.21	.14	.38	.18	.43	.27	.49	.19	.58	.23	.65	.15	.54	.30	.47	.16	.26	.14	.15	.16
42. Teacher with large group in any activity	.36	.11	.38	.11	.34	.28	.32	.15	.26	.21	.09	.08	.29	.15	.34	.16	.27	.17	.47	.16
43. Aide with one child in any activity	.16	.12	.05	.07	.02	.05	.03	.06	.10	.08	.02	.04	.11	.13	.08	.07	.08	.11	.36	.16
44. Aide with two children in any activity	.10	.10	.02	.02	.03	.04	.27	.48	.26	.59	.02	.03	.06	.08	.04	.05	.02	.02	.06	.08
45. Aide with small group in any activity	.14	.10	.29	.23	.76	.44	.89	.25	.92	.48	.73	.19	.49	.24	.35	.14	.20	.12	.03	.05
46. Aide with large group in any activity	.05	.06	.12	.14	.51	.52	.34	.21	.16	.16	.06	.10	.10	.09	.09	.09	.11	.11	.02	.03
47. Teacher without children	.17	.07	.17	.10	.09	.09	.14	.10	.11	.08	.20	.09	.32	.19	.10	.09	.31	.09	.06	.08
48. Aide without children	.70	.43	.32	.22	.36	.14	.47	.21	.34	.22	.20	.14	.59	.28	.84	.45	.41	.28	.54	.22
49. One child engaged in any activity without adult	1.12	.54	.34	.20	.41	.42	.49	.38	.17	.29	.21	.39	1.0	1.02	1.53	.64	.94	.55	.73	.56
50. Two children engaged in any activity without adult	.66	.45	.20	.10	.32	.46	.19	.14	.03	.03	.09	.05	.43	.49	.69	.29	.82	.47	.30	.27
51. Small group without adult in any activity	.80	.6[illegible]	1.12	.52	.81	.57	.50	.22	.66	.20	.55	.41	.43	.26	1.[illegible]8	.45	1.36	.65	1.41	.67
52. Large group without adult in any activity	.18	.12	.07	.08	.12	.11	.06	.07	.21	.17	.05	.06	.09	.08	.05	.04	.18	.15	.11	.12
53. Number of adults in classroom	2.38	.52	1.96	.10	3.05	.56	2.89	.12	2.64	.43	4.06	.45	3.05	.59	2.31	.36	2.10	.68	2.59	.50
61. Number of frames	65.98	3.55	69.[illegible]	5.24	72.10	2.65	68.54	6.19	73.21	2.30	63.77	2.50	65.03	3.52	69.65	2.95	62.10	5.67	65.46	6.48
FMO Variables																				
1. Child talking to adult	12.71	2.89	15.03	3.48	16.13	5.69	16.29	3.55	17.97	4.82	2.73	3.21	17.28	3.75	13.67	3.32	10.12	4.73	16.50	2.04
2. Child initiating interaction with adult	5.47	3.51	4.98	2.31	6.99	3.54	6.47	2.68	5.16	3.44	4.21	2.27	5.01	1.78	4.79	3.24	3.44	2.18	5.14	1.75
3. Child initiating interaction with teacher	4.29	2.84	4.53	2.31	5.59	3.01	5.29	2.34	4.29	3.17	3.44	2.17	3.42	1.53	3.72	3.15	2.63	1.39	4.17	1.59
4. Child initiating interaction with aide	1.17	.81	.41	.52	1.40	.79	1.16	.81	.84	.43	.77	.20	1.43	.81	1.06	.58	.81	.96	.93	.28
5. Child talking to other children	.63	.60	.03	.06	.33	.75	.01	.01	.03	.05	.05	.11	.70	.74	.03	.05	.01	.02	1.89	2.96
6. Other children talking to child	.22	.22	.01	.03	.03	.07	0.0	0.0	.01	.03	.01	.02	.17	.15	.03	.05	0.0	0.0	.07	.12

Appendix L-2 (Continued)

U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)		Interdependent Learning Model (IL)		Southwest Lab (SE)		F Ratio Among Sponsors		Ranking of Sponsors by Their Means	All FT		All NFT		F Ratio FT/NFT	
$\bar{Y}$	S.D.	$\bar{Y}$	S.D.	$\bar{Y}$	S.D.	$\bar{Y}$	S.D.	$\bar{Y}$	S.D.	df 11/134	Alpha p<	Low High	$\bar{Y}$	S.D.	$\bar{Y}$	S.D.	df 1/218	Alpha Level p<
.27	.11	.38	.21	.38	.09	.22	5.97	.19	.12	13.79	.001	SE, IL, UF, W, HS, UA, UG, ED, UP, BC, UK, UO	.374	.208	.195	.114	47.03	.001
9.13	2.31	4.38	3.47	7.81	2.82	5.97	5.21	.98	.91	10.52	.001	SE, UK, HS, UG, FW, UO, BC, UA, ED, IL, UP, UF	4.12	3.45	3.27	2.59	3.48	.10
.04	.04	.09	.06	.35	.18	.07	.07	.02	.04	8.87	.001	SE, UK, UO, UF, UA, IL, UG, ED, FW, BC, HS, UP	.095	.125	.067	.103	2.73	.10
.05	.08	.09	.06	.02	.03	.07	.07	.01	.02	2.54	.01	SE, UO, UG, UP, UA, UK, BC, UF, IL, HS, FW, ED	.044	.066	.023	.067	4.75	.05
.47	.16	.27	.14	.16	.15	.47	.18	.19	.22	8.02	.001	UP, SE, FW, ED, UA, BC, IL, UF, UG, HS, UO, UK	.413	.254	.169	.148	58.24	.001
.35	.16	.28	.18	.47	.16	.28	.17	.59	.20	5.61	.001	UK, UO, ED, IL, HS, UG, UF, BC, FW, UA, UP, SE	.344	.199	.643	.180	118.01	.001
.04	.05	.09	.06	.35	.18	.07	.07	.02	.04	8.88	.001	SE, UK, UO, UF, UA, IL, UG, ED, FW, BC, HS, UP	.095	.125	.067	.103	2.68	.10
.05	.08	.08	.06	.02	.03	.06	.07	.01	.02	2.34	.05	SE, UO, UG, UP, UA, BC, UK, UF, IL, HS, ED, FW	.042	.065	.023	.067	4.14	.05
.47	.16	.26	.14	.15	.16	.45	.18	.19	.21	7.70	.001	UP, SE, FW, ED, UA, BC, IL, UF, UG, HS, UO, UK	.400	.250	.168	.148	54.27	.001
.34	.16	.27	.17	.47	.16	.28	.17	.56	.21	5.11	.001	UK, UO, ED, IL, HS, UG, BC, UF, FW, UA, UP, SE	.331	.193	.639	.182	129.86	.001
.08	.07	.08	.11	.36	.16	.04	.06	.02	.03	12.97	.001	SE, UK, BC, UG, IL, UA, UF, ED, UO, HS, FW, UP	.090	.126	.025	.052	18.05	.001
.04	.05	.02	.02	.06	.08	.02	.23	.01	.02	1.96	.05	SE, UP, UK, UA, BC, ED, UF, IL, HS, FW, UO, UG	.076	.231	.010	.039	5.89	.05
.35	.14	.20	.12	.03	.05	.34	.21	.23	.36	15.56	.001	UP, FW, ED, SE, UA, IL, UF, HS, UK, BC, UG, UC	.415	.385	.042	.094	78.65	.001
.09	.09	.11	.11	.02	.03	.07	.07	.26	.18	6.84	.001	UP, FW, UK, IL, UF, HS, ED, UA, UO, SE, UG, BC	.156	.228	.037	.087	18.8[illegible]	.001
.10	.09	.31	.09	.06	.08	.17	.09	.29	.14	8.28	.001	UP, BC, UF, UO, UG, UA, FW, IL, UK, SE, ED, HS	.180	.136	.127	.123	7.87	.01
.84	.45	.41	.28	.54	.22	.32	.17	.70	.19	6.15	.001	UK, IL, UA, UO, BC, ED, UG, UP, HS, FW, SE, UF	.469	.312	.155	.290	[illegible].20	.001
1.53	.64	.94	.55	.73	.56	1.03	.52	.41	.44	6.94	.001	UO, UK, UA, SE, BC, UG, UP, ED, HS, IL, FW, UF	.714	.670	.475	.546	7.02	.01
.69	.29	.82	.47	.30	.27	.82	.54	.18	.22	7.70	.001	UO, UK, SE, UG, UA, UP, BC, HS, FW, UF, IL, ED	.398	.431	.217	.254	11.10	.01
1.78	.45	1.36	.65	1.41	.67	1.44	.81	.17	.20	12.07	.001	SE, HS, UG, UK, UO, FW, BC, UA, ED, UP, IL, UF	.910	.676	.478	.509	23.51	.001
.05	.04	.18	.15	.11	.12	.07	.07	.11	.12	3.26	.001	UF, UK, UG, IL, UA, HS, IL, SE, BC, FW, ED, UO	.109	.113	.247	.177	49.39	.001
2.31	.36	2.10	.68	2.69	.50	2.32	.57	2.56	.98	11.92	.001	UA, ED, UF, IL, FW, SE, UO, UP, UG, HS, BC, UK	2.660	.730	1.382	.624	165.11	.001
69.65	2.95	62.10	5.67	65.46	6.48	65.74	3.59	70.53	2.82									
13.67	3.32	10.12	4.73	16.50	2.04	15.98	4.22	11.13	1.98	5.40	.001	ED, SE, FW, UK, UF, UA, IL, BC, UG, UP, HS, UO	14.731	4.383	14.070	4.464	1.100	NS
4.79	3.24	3.44	2.18	5.14	1.75	5.23	2.71	2.44	1.05	2.51	.01	SE, ED, UK, UF, UA, HS, UP, UO, IL, FW, UG, BC	4.96	2.78	5.17	2.88	.296	NS
3.72	3.15	2.63	1.39	4.17	1.59	4.06	1.96	1.89	.86	2.44	.01	SE, ED, HS, UK, UF, IL, UP, UO, FW, UA, UG, BC	3.97	2.41	4.95	2.86	7.64	.01
1.06	.58	.81	.96	.93	.28	1.14	1.04	.50	.36	2.68	.01	UA, SE, UK, ED, UO, UP, UF, IL, FW, UG, BC, HS	.985	.737	.192	.537	67.52	.001
.03	.05	.01	.02	1.89	2.96	.41	.40	.36	.58	3.90	.001	UG, ED, UA, UF, UO, UK, BC, SE, IL, FW, HS, UP	.385	1.05	.683	1.104	3.85	.05
.03	.05	0.0	0.0	.07	.12	.17	.19	.04	.04	6.56	.001	ED, UG, UK, UA, UO, UF, BC, SE, UP, IL, HS, FW	.068	.126	.059	.104	.290	NS

Appendix L-2 (Continued)

SPONSOR VARIABLES	Far West Lab (FW)		U. Arizona (UA)		Bank Street (BC)		U. Georgia (UG)		U. Oregon (UO)		U. Kansas (UK)		High/Scope (HS)		U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)		Interdepe Learn Mode (IL
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$
7. Child not interacting with anyone	1.29	1.22	.02	.06	.17	.21	.96	2.91	.01	.03	.91	1.38	1.09	.89	.26	.30	.08	.17	.51	.92	.50
8. Child initiating interaction with different child	.18	.21	.03	.06	.04	.06	.01	.01	.002	.01	.01	.03	.19	.15	.01	.02	.01	.02	.05	.11	.09
9. Different child initiating interaction with child	.07	.07	.01	.03	.03	.07	0.0	0.0	.002	.01	0.0	0.0	.09	.08	.02	.05	0.0	0.0	.05	.07	.11
10. Child initiating interaction with two children	.01	.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.01	.01	0.0	0.0	0.0	0.0	.002
11. Two children initiating interaction with child	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12. Child initiating interaction with small group	.09	.28	0.0	0.0	.06	.19	0.0	0.0	.02	.05	.03	.06	.09	.10	0.0	0.0	0.0	0.0	1.18	2.67	.21
13. Child initiating interaction with a machine	.003	.01	0.0	0.0	.002	.01	0.0	0.0	0.0	0.0	0.0	0.0	.002	.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14. Machine initiating interaction with a child	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.004	.01	0.0	0.0	0.0	0.0	0.0	0.0	.01
15. Child giving request or command	.50	.32	.48	.31	.70	.45	.80	.87	.41	.27	1.42	1.84	.71	.28	.94	.60	.59	.42	.96	.51	.47
16. Child asking direct question	1.80	1.05	1.39	.91	1.10	.73	1.22	.88	.62	.28	.54	.17	1.14	.64	.98	.45	.59	.27	.97	.50	.63
17. Child asking open-ended question	.08	.13	.09	.13	.02	.05	.003	.01	0.0	0.0	.01	.03	.05	.07	.01	.01	.01	.03	.01	.03	.01
18. Child asking question	1.88	1.14	1.48	.90	1.12	.76	1.22	.88	.62	.28	.55	.19	1.19	.65	.99	.45	.60	.27	.97	.50	.65
19. Child responding	11.17	1.90	12.50	2.50	11.49	4.04	13.09	1.84	17.07	3.32	13.42	4.41	15.42	3.53	13.16	3.35	9.43	4.57	16.47	2.06	16.46
20. Child responding with academic theme	4.88	1.44	3.65	2.82	3.18	3.78	7.35	2.18	11.33	2.30	9.22	3.47	2.90	1.72	7.03	2.50	4.12	1.95	8.29	1.95	7.38
21. Child responding to adult open-ended question	1.09	.63	1.40	.74	.29	.27	.13	.16	.17	.18	.69	1.01	1.60	1.13	.29	.23	.42	.41	.42	.57	.45
22. Child giving elaborated response to adult open-ended question	.02	03	.01	.02	.01	.02	.002	.01	.01	.01	0.0	0.0	.01	.02	.01	.03	.04	.07	.01	.02	.01
23. Child instructing self	.12	.17	0.0	0.0	.05	.12	.01	.03	.002	.01	.10	.24	.17	.23	.08	.17	.04	.15	.04	.08	.14
24. Child instructing self in academic activity	.06	.09	0.0	0.0	.05	.12	.01	.02	.002	.01	.10	.24	.10	.15	.03	.09	.02	.07	.03	.07	.12
25. Child instructing self by using objects	.01	.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.02	.06	0.0	0.0	0.0	0.0	0.0	0.0	.01
26. Child instructing self in academic activity by using objects	.02	.05	0.0	0.0	0.0	0.0	.01	.02	0.0	0.0	0.0	0.0	.03	.08	0.0	0.0	0.0	0.0	0.0	0.0	.01
27. Child instructing other children	.25	.25	0.0	0.0	.29	.77	0.0	0.0	.02	.04	.03	.09	.32	.50	.01	.04	0.0	0.0	1.78	2.97	.23
28. Other children instructing child	.01	.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.003	.01	.004	.01	0.0	0.0	.01	.02	.01
29. Child task-persistent in self-instruction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.01	.04	.02	.08	0.0	0.0	0.0	0.0	.02
30. Child inattentive to teacher or machine instructing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.002
31. Child attentive to adult or machine	0.0	0.0	.28	.96	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32. Child commenting to adult	.59	.61	.52	.41	.26	.19	.75	.54	.16	.13	.23	.12	.66	.59	.37	.26	.12	.10	.36	.33	.90
33. Child commenting to other children	.03	.03	.01	.03	.01	.03	0.0	0.0	0.0	0.0	0.0	0.0	.09	13	.004	.01	.003	.01	.02	.03	.04
34. Other children commenting to child	.02	.03	.002	.01	.01	.02	0.0	0.0	0.0	0.0	0.0	0.0	.02	.04	.002	.01	0.0	0.0	.01	.01	.05
35. Child participating in general action	.19	.16	.06	.14	.27	.55	.002	.01	.002	.01	.14	.16	.50	.35	.04	.04	.12	.24	.36	.49	.36
36. Child giving praise	.003	.01	0.0	0.0	0.0	0.0	0.0	0.0	.004	.01	.003	.01	.002	.01	.002	.01	0.0	0.0	.01	.01	.01
37. Child giving acknowledgment	.14	.17	.01	.02	.07	.11	.01	.02	0.0	0.0	.05	.08	.03	.07	.08	.15	.004	.01	.03	.05	.03
38. Child making productive statement	2.87	2.23	1.82	.94	1.01	.61	1.58	.92	.43	.33	.40	.37	2.15	.91	.91	.42	.31	.24	1.54	.61	1.76

Appendix L-2 (Continued)

Scope S)	U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)		Interdependent Learning Model (IL)		Southwest Lab (SE)		F Ratio Among Sponsors		Ranking of Sponsors by Their Means	All FT		All NFT		F Ratio FT/NFT	
S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	df 11/131	Alpha p<	Low High	X̄	S.D.	X̄	S.D.	df 1/218	Alpha Level p<
.89	.26	.30	.08	.17	.51	.92	.50	.36	.11	.15	2.32	.05	UO, UA, ED, SE, BC, UF, IL, UP, UK, UG, HS, FW	.503	1.115	.477	.817	.0323	NS
.15	.01	.02	.01	.02	.05	.11	.09	.13	.06	.07	6.39	.001	UO, UG, ED, UF, UK, UA, BC, UP, SE, IL, FW, HS	.060	.114	.055	.087	.092	NS
.08	.02	.05	0.0	0.0	.05	.07	.11	.16	.02	.03	4.36	.001	ED, UK, UG, UO, UA, SE, UF, BC, UP, FW, HS, IL	.036	.074	.027	.058	.828	NS
0.0	.01	.01	0.0	0.0	0.0	0.0	.002	.01	.00	.00	1.84	.10	SE, UP, ED, UF, UK, UO, UG, BC, UA, IL, HS, FW	.001	.007	.001	.005	.440	NS
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	1.02	NS	SE, UP, ED, UF, HS, UK, UO, UG, BC, UA, FW, IL	.000	.000	.000	.000	.000	NS
.10	0.0	0.0	0.0	0.0	1.18	2.67	.21	.37	.07	.12	2.17	.05	ED, UF, UG, UA, UO, UK, BC, SE, FW, HS, IL, UP	.147	.814	.171	.534	.0510	NS
.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.00	.00	.74	NS	SE, IL, UP, ED, UF, UK, UO, UG, UA, HS, BC, FW	.001	.004	.000	.000	1.2	NS
.01	0.0	0.0	0.0	0.0	0.0	0.0	.01	.02	.00	.00	1.61	NS	SE, UP, ED, UF, UK, UO, UG, BC, UA, FW, HS, IL	.001	.004	.000	.000	1.6	NS
.28	.94	.60	.59	.42	.96	.51	.47	.55	.48	.30	2.15	.05	UO, IL, SE, UA, FW, ED, BC, HS, UG, UF, UP, UK	.695	.686	.618	.517	.726	NS
.64	.9	.45	.59	.27	.97	.59	.63	.27	.28	.10	5.70	[illegible]	SE, UK, ED, UO, IL, UP, UF, BC, HS, UG, UA, FW	.948	.719	1.108	.935	1.955	NS
.07	.01	.01	.0	.03	.01	.03	.01	.02	.01	.04	2.87	.01	UO, UG, UF, UP, IL, UK, ED, SE, BC, HS, FW, UA	.026	.066	.015	.034	1.94	NS
.65	.99	.45	.60	.27	.97	.59	.65	.28	.29	.19	5.99	.001	SE, UK, ED, UO, IL, UP, UF, BC, HS, UG, UA, FW	.975	.743	1.123	.937	1.624	NS
3.53	13.16	3.35	9.43	4.57	16.47	2.06	16.46	2.03	14.38	3.12	6.75	.001	ED, FW, BC, UA, UG, UF, UK, SE, HS, IL, UP, UO	13.723	3.817	13.131	3.119	1.33	NS
1.72	7.03	2.50	4.12	1.95	8.29	1.95	7.38	3.78	5.57	2.36	12.68	.001	HS, BC, UA, ED, FW, SE, UF, UG, IL, UP, UK, UO	6.108	3.561	5.532	2.881	1.452	NS
1.13	.29	.23	.42	.41	.42	.57	.45	.22	1.14	.75	8.50	.001	UG, UO, UF, BC, UP, ED, IL, UK, FW, SE, UA, HS	.699	.787	.543	.565	2.295	.10
.02	.01	[illegible]	.04	.07	.01	.02	.01	.03	.01	.03	1.57	NS	UK, UG, UO, UA, BC, UF, UP, HS, IL, SE, FW, ED	.013	.029	.017	.040	.8215	NS
.23	.08	.17	.04	.15	.04	.08	.14	.15	.06	.03	2.01	.05	UA, UO, UG, SE, UP, ED, BC, UF, UK, FW, IL, HS	.066	.147	.041	.112	1.722	NS
.15	.03	.09	.02	.07	.03	.07	.12	.16	.01	.03	1.79	.10	UA, UO, UG, SE, ED, UF, UP, BC, FW, HS, UK, IL	.045	.111	.032	.105	.693	NS
.06	0.0	0.0	0.0	0.0	0.0	0.0	.04	.03	.00	.00	1.41	NS	SE, UP, ED, UF, UK, UO, UG, BC, UA, IL, FW, HS	.004	.022	.005	.023	.149	NS
.08	0.0	.0	0.0	0.0	0.0	0.0	.01	.02	.00	.00	1.35	NS	SE, UP, ED, UF, UK, UO BC, UA, UG, IL, FW, HS	.006	.032	.000	.000	2.30	NS
.50	.01	.04	0.0	0.0	1.78	2.97	.23	.37	.27	.60	3.46	.001	ED, UG, UA, UF, UO, UK, IL, FW, SE, BC, HS, UP	.272	1.001	.573	1.071	4.259	.05
.01	.004	.01	0.0	0.0	.01	.02	.01	.01	.00	.00	1.24	NS	SE, ED, UK, UO, UG, BC, UA [illegible] F, FW, IL, UP	.002	.010	.002	[illegible]	.151	NS
.04	.02	.08	0.0	0.0	0.0	0.0	.02	.04	.00	.00	1.14	NS	SE, UP, ED, UK, UO, UG, [illegible] FW, HS, IL, UF	.005	.028	.003	.014	.444	NS
0.0	0.0	0.0	0.0	0.0	0.0	0.0	.002	.01	.00	.00	1.02	NS	SE, UP, ED, UF, HS, UK, UO, UG, BC, UA, FW, IL	.000	.002	.000	.000	.506	NS
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.00	.00	1.02	NS	SE, IL, UP, ED, UF, HS, UK, UO, UG, BC, FW, UA	.023	.274	.000	.000	.506	NS
.59	.37	.26	.12	.1	.36	.33	.80	.60	.47	.31	4.33	.001	ED, UO, UK, BC, UP, UF, SE, UA, FW, HS, UG, IL	.458	.455	.613	.579	4.707	.05
.13	.004	.01	.003	.01	.02	.03	.04	.04	.02	.03	4.14	.001	UK, UO, UG, ED, UF, UA, BC, UP, SE, FW, IL, HS	.020	.054	.026	.056	.577	NS
.04	.002	.01	0.0	0.0	.01	.01	.05	.08	.01	.02	2.65	.01	ED, UK, UO, UG, UA, UF, UP, SE, BC, FW, HS, IL	.010	.031	.014	.055	.562	NS
.35	.04	.04	.12	.24	.36	.49	.36	.42	.03	.06	4.36	.001	UG, UO, SE, UF, UA, ED, UK, FW, BC, UP, IL, HS	.181	.323	.310	.599	4.367	.05
.01	.002	.01	0.0	0.0	.01	.01	.01	.02	.00	.02	1.81	.10	ED, UG, DC, UA, HS, UF, FW, UK, UO, SF, UP, IL	.003	.011	.002	.013	.429	NS
.07	.08	.15	.004	.01	.03	.05	.03	.04	.02	.03	2.91	.01	UO, ED, UG, UA, SE, UP, IL, HS, UK, BC, UF, FW	.039	.086	.048	.101	.463	NS
.91	.91	.42	.31	.24	1.54	.61	1.76	1.06	1.64	.70	8.37	.001	ED, UK, UO, UF, BC, UP, UG, SE, IL, UA, HS, FW	1.403	1.167	1.335	1.048	.169	NS

SPONSOR / VARIABLES	Far West Lab (FW)		U. Arizona (UA)		Bank Street (BC)		U. Georgia (UG)		U. Oregon (UO)		U. Kansas (UK)		High/Scope (HS)		U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)		Interde Lear Mod (I
	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄
39. Other children making productive statement to child	.02	.03	.01	.02	.02	.05	0.0	0.0	.002	.01	0.0	0.0	.06	.08	.01	.03	0.0	0.0	.02	.05	.08
40. Child giving corrective feedback	.04	.04	.01	.01	.01	.01	.01	.01	.01	.02	.01	.03	.09	.08	.02	.02	.01	.02	.04	.05	.04
41. Child not responding	.42	.26	.50	.38	.32	.14	.41	.29	.26	.16	.66	.65	.52	.37	.73	.28	.28	.22	.49	.42	.33
42. Child waiting	.19	.59	.02	.05	.02	.33	0.0	0.0	.01	.02	.02	.04	1.41	1.57	.53	1.2	.15	.31	.09	.22	.20
43. Child attentive	3.01	4.89	.08	.21	.33	.49	.12	.27	.01	.02	.09	.17	.59	1.01	1.50	2.16	.15	.21	.49	.56	.42
44. Child attentive to other children	.003	.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.002	.01	0.0	0.0	0.0	0.0	0.0	0.0	.00
45. Child attentive to adults	1.86	2.91	.06	.21	.22	.26	.09	.27	.01	.02	.09	.17	.47	1.03	1.46	2.18	.10	.15	.31	.32	.33
46. Child attentive to a machine	.003	.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.01	.06	0.0	0.0	0.0	0.0	.01	.03	0.0
47. Child nonverbal	6.09	4.92	2.03	.85	2.55	.97	1.70	.52	1.10	.38	1.71	.83	4.94	2.58	5.16	3.24	2.62	2.39	3.75	1.00	4.19
48. All child motion	2.49	.83	1.43	.87	1.89	1.02	1.18	.57	.82	.29	.93	.32	2.43	.88	2.40	.95	2.08	1.93	2.68	1.15	3.23
49. Child happy	.45	.73	.29	.28	.30	.34	.29	.42	.03	.04	.15	.23	.15	.12	.31	.23	.08	.12	.05	.07	.31
50. Child showing positive behavior	.99	.83	.57	.57	.64	.71	.46	.59	.06	.09	.28	.38	.46	.27	.43	.30	.26	.45	.19	.22	.66
51. Other children showing positive behavior to child	.05	.11	.002	.01	.01	.01	0.0	0.0	0.0	0.0	.01	.02	.03	.04	0.0	0.0	0.0	0.0	.002	.01	.04
52. Child showing negative behavior	.15	.17	.06	.06	.04	.04	.05	.08	0.0	0.0	.02	.04	.11	.15	.03	.03	.11	.22	.01	.03	.02
53. Any child or children showing negative behavior	.17	.18	.06	.07	.05	.06	.05	.09	.004	.01	.03	.06	.14	.19	.03	.03	.13	.23	.02	.03	04
54. Other children negative to child	.003	.01	0.0	0.0	.002	.01	0.0	0.0	0.0	0.0	0.0	0.0	.004	.01	0.0	0.0	0.0	0.0	0.0	0.0	.01
55. Child giving positive touch	.003	.01	.01	.01	.01	.03	.01	.01	0.0	0.0	.01	.02	0.0	0.0	0.0	0.0	.01	.01	0.0	0.0	.03
56. Child giving negative touch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.01	.02	0.0	0.0	.01	.01	0.0	0.0	.00
57. Child engaged in task-related activity	6.29	1.95	4.04	2.33	6.08	3.68	8.82	3.20	5.20	2.02	11.25	3.81	4.08	2.78	7.38	3.88	4.08	2.15	11.09	4.20	8.08
58. Child cooperating with other children	0.0	0.0	.003	.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.01	.01	0.0	0.0	0.0	[illegible]	0.0	0.0	.01
59. Child sharing life experiences	.40	.40	.37	52	.23	.22	.18	.23	.01	.02	.07	.09	.14	.12	.25	.32	.11	.09	.32	.29	.27
60. Child showing imagination	.02	.04	.02	.04	.002	.01	.01	.05	.04	.02	0.0	0.0	.16	.42	.002	.01	0.0	0.0	.02	.06	.03
61. Adult interacting with one child	24.57	5.74	23.36	6.39	23.00	7.90	23.27	5.46	15.68	4.83	34.86	4.47	23.90	4.90	25.34	4.58	15.70	3.26	28.90	5.22	19.26
62. Adult interacting with two children	1.56	1.45	.66	.56	.40	.48	.27	.27	.49	1.002	.35	.26	.94	.74	.74	.58	1.68	1.22	.73	.86	.83
63. Adult interacting with small group	2.62	1.66	5.78	4.42	6.74	6.60	7.81	5.72	21.92	9.16	5.65	4.40	5.78	2.74	6.62	4.09	7.77	4.21	2.54	1.35	8.06
64. Adult interacting with large group	10.85	3.66	14.66	5.66	9.38	6.32	10.61	6.57	8.84	6.95	5.10	2.91	6.72	3.24	9.69	5.51	8.68	3.94	11.11	4.72	8.55
65. Teacher interacting with one child	19.34	5.08	21.58	6.76	17.80	6.38	18.84	5.56	11.72	4.27	26.58	3.02	17.48	5.41	20.75	5.51	12.42	3.03	22.46	4.79	15.30
66. Aide interacting with one child	5.21	1.29	1 49	1.67	5.21	1.63	4.44	2.42	3.85	1.40	8.28	1.71	6.03	3.09	4.57	2.40	3.28	2.41	6.36	2.38	3.93
67. Aide interacting with two children	.41	.61	.08	.15	.08	.14	.09	.22	.03	.03	.02	.03	.15	.14	.11	.12	.49	.60	.26	.70	.19
68. Teacher interacting with two children	1.15	1.12	.58	.55	[illegible]	.35	.18	.18	.46	.99	.33	.25	.77	.74	.63	.63	1.19	.92	.35	.21	.63
69. Teacher interacting with small group	2.24	1.58	5.46	4.12	5.13	4.95	6.25	4.61	15.78	7.24	4.34	4.35	4.26	2.33	6.17	4.23	5.86	3.99	2.38	1.35	6.43
70. Aide interacting with small group	.37	.27	.29	.52	1.62	1.73	1.56	1.32	6.10	2.36	1.31	1.12	1.36	.98	.45	.36	1.91	1.56	.16	.21	1.61
71. Teacher interacting with large group	9.27	3.53	11.90	4.86	8.33	5.91	9.01	5.68	6.51	5.39	4.00	2.75	4.74	2.72	8.04	5.75	7.08	3.10	10.82	4.67	7.39
72. Aide interacting with large group	1.22	.62	2.49	3.62	1.05	1.07	1.59	1.24	2.18	2.32	1.09	1.40	1.50	1.66	1.56	1.84	1.60	1.64	.26	.24	.96
73. Adult talking to child	21.80	6.01	20.78	6.89	22.20	7.35	21.32	6.10	11.96	4.31	29.34	3.51	22.22	4.84	23.40	4.19	13.54	3.42	24.61	4.95	16.83
74. Adult initiating interaction with child	18.01	6.60	17.03	7.94	17.49	6.17	18.10	5.60	9.69	2.25	28.10	4.64	20.07	5.11	18.43	3.96	11.25	3.73	23.98	5.20	15.86
75. Teacher initiating interaction with child	14.50	5.67	15.91	8.23	13.50	5.28	14.77	4.79	6.92	1.61	21.49	3.73	14.80	5.17	15.04	4.63	8.86	3.30	18.85	4.32	12.64
76. Aide initiating interaction with child	3.52	1.49	.90	.93	3.99	1.27	3.34	2.29	2.69	1.13	6.60	1.28	5.00	2.91	3.38	1.82	2.39	1.81	5.09	2.34	3.20
77. Adult giving request or command to children	5.57	1.12	4.64	1.32	4.89	2.12	6.08	1.36	9.79	2.62	6.53	1.63	5.38	1.21	6.87	1.73	3.51	2.08	7.84	.89	5.46

Appendix L-2 (Continued)

. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)		Interdependent Learning Model (IL)		Southwest Lab (SE)		F Ratio Among Sponsors		Ranking of Sponsors by Their Means	All FT		All NFT		F Ratio FT/NFT	
X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	df 11/134	Alpha p<	Low High	X̄	S.D.	X̄	S.D.	df 1/218	Alpha Level p<
.01	.03	0.0	0.0	.02	.05	.08	.10	.02	.03	3.68	.001	ED, UK, UG, UO, UF, UA, FW, SE, BC, UP, HS, IL	.021	.050	.013	.037	1.416	NS
.02	.02	.01	.02	.04	.05	.04	.05	.02	.03	5.17	.001	ED, UG, UA, UO, BC, UK, UF, SE, FW, UP, IL, HS	.026	.045	.038	.110	1.392	NS
.73	.28	.28	.22	.49	.42	.33	.29	.74	.62	2.48	.01	UO, ED, BC, IL, UG, FW, UP, UA, HS, UK, UF, SE	.470	.388	.449	.363	.147	NS
.53	1.21	.15	.31	.09	.22	.20	.23	.06	.09	5.51	.001	UG, UO, UA, BC, UK, SE, UP, ED, FW, IL, UF, HS	.261	.770	.285	.720	.0489	NS
.50	2.16	.15	.21	.49	.56	.42	.70	.69	.69	3.35	.001	UO, UA, UK, UG, ED, BC, IL, UP, HS, SE, UF, FW	.628	1.751	.827	2.181	.535	NS
.0	0.0	0.0	0.0	0.0	0.0	.002	.01	.00	.00	.74	NS	SE, UP, ED, UF, UK, UO, UG, BC, UA, HS, IL, FW	.001	.004	.002	.014	1.100	NS
.46	2.18	.10	.15	.31	.32	.33	.66	.62	.58	3.24	.001	UO, UA, UG, UK, ED, BC, UP, IL, HS, SE, UF, FW	.473	1.229	.483	1.346	.0035	NS
.0	0.0	0.0	0.0	.01	.03	0.0	0.0	.00	.00	.77	NS	SE, IL, ED, UF, UK, UO, UG, BC, UA, FW, UP, HS	.003	.021	.000	.000	1.251	NS
.16	3.24	2.62	2.39	3.75	1.00	4.19	1.13	4.04	1.33	6.55	.001	UO, UG, UK, UA, BC, ED, UP, SE, IL, HS, UF, FW	3.389	2.595	4.264	3.072	4.929	.05
.40	.95	2.08	1.93	2.68	1.15	3.23	.85	2.55	.82	7.36	.001	UO, UK, UG, UA, BC, ED, UF, HS, FW, SE, UP, IL	2.036	1.175	2.713	1.466	13.765	.001
.31	.23	.08	.12	.05	.07	.31	.29	.11	.14	2.28	.05	UO, UP, ED, SE, HS, UK, UG, UA, BC, IL, UF, FW	.210	.322	.159	.223	1.503	NS
.43	.30	.26	.45	.19	.22	.66	.56	.29	.23	3.30	.001	UO, UP, ED, UK, SE, UF, UG, HS, UA, BC, IL, FW	.443	.519	.492	.665	.350	NS
.0	0.0	0.0	0.0	.002	.01	.04	.06	.01	.02	2.05	.05	ED, UF, UO, UG, UA, UP, UK, BC, SE, HS, IL, FW	.012	.041	.012	.052	.002	NS
.03	.03	.11	.22	.01	.03	.02	.02	.07	.08	2.56	.01	UO, UP, IL, UK, UF, BC, UG, UA, SE, ED, HS, FW	.055	.108	.057	.095	.014	NS
.03	.03	.13	.23	.02	.03	.04	.05	.07	.09	2.59	.01	UO, UP, UF, UK, IL, BC, UG, UA, SE, ED, HS, FW	.068	.123	.079	.123	.388	NS
.0	0.0	0.0	0.0	0.0	0.0	.01	.03	.00	.00	1.24	NS	SE, UP, ED, UF, UK, UO, UG, UA, BC, FW, HS, IL	.002	.011	.001	.006	.414	NS
.0	0.0	.01	.01	0.0	0.0	.03	.05	.0	.04	1.51	NS	UP, UF, HS, UO, FW, UG, UA, ED, UK, BC, SE, IL	.006	.021	.016	.113	1.230	NS
.0	0.0	.01	.01	0.0	0.0	.002	.01	.00	.00	1.30	NS	SE, UP, UF, UK, UO, UG, BC, UA, FW, IL, HS, ED	.001	.007	.002	.018	.463	NS
.38	3.88	4.08	2.15	11.09	4.20	8.08	4.51	3.73	1.45	8.68	.001	SE, UA, HS, ED, UO, BC, FW, UF, IL, UG, UP, UK	6.542	3.934	6.118	3.696	.594	NS
.0	0.0	0.0	0.0	0.0	0.0	.01	.01	.002	.01	1.45	NS	UP, ED, UF, UK, UO, UG, BC, FW, SE, UA, IL, HS	.001	.006	.001	.005	.377	NS
.25	.32	.11	.09	.32	.29	.27	.36	.14	.12	2.33	.05	UO, UK, ED, HS, SE, UG, BC, UF, IL, UP, UA, FW	.207	.283	.265	.306	1.915	NS
.002	.01	0.0	0.0	.02	.06	.03	.09	.02	.05	1.32	NS	ED, UK, BC, UF, UO, UG, SE, UA, UP, FW, IL, HS	.028	.147	.018	.082	.273	NS
.34	4.58	15.70	3.26	28.90	5.22	19.26	4.28	17.58	4.27	12.39	.001	UO, ED, SE, IL, BC, UG, UA, HS, FW, UF, UP, UK	22.82	7.15	20.37	6.27	6.208	.05
.74	.58	1.68	1.22	.73	.86	.83	.86	.41	.31	3.78	.001	UG, UK, BC, SE, UO, UA, UP, UF, IL, HS, FW, ED	.765	.887	.536	.318	4.189	.05
.62	4.09	7.77	4.21	2.54	1.35	8.06	3.16	5.33	5.15	12.83	.001	UP, FW, SE, UK, UA, HS, UF, BC, ED, UG, IL, UO	7.199	6.618	3.423	2.803	22.055	.001
.69	5.51	8.68	3.94	11.11	4.72	8.55	4.35	19.59	9.86	5.39	.001	UK, HS, IL, ED, UO, BC, UF, UG, FW, UP, UA, SE	10.288	6.47	17.70	6.72	62.88	.001
.75	5.51	12.42	3.03	22.46	4.79	15.30	4:57	13.96	3.29	8.71	.001	UO, ED, SE, IL, HS, BC, UG, FW, UF, UA UP, UK	18.05	6.28	19.51	6.72	2.53	NS
.57	2.40	3.2[illegible]	2.41	6.36	2.38	3.93	2.18	3.06	2.00	7.69	.001	UA, SE, ED, UO, IL, UG, UF, BC, FW, HS, UP, UK	4.63	2.64	.749	1.48	137.53	.001
.11	.12	.49	.60	.26	.70	.19	.23	.07	[illegible]	2.27	.05	UK, UO, SE, UA, BC, UG, UF, HS, IL, UP, FW, ED	.165	.356	.029	.087	10.40	.01
.63	.63	1.19	.92	.35	.21	.63	.65	.33	.27	2.94	.01	UG, BC, UK, SE, UP, UO, UA, IL, UF, HS, FW, ED	.586	.703	.506	.511	.741	NS
.17	4.23	5.86	3.99	2.38	1.35	6.43	2.38	4.45	4.22	8.78	.001	FW, UP, HS, UK, SE, BC, UA, ED, UF, UG, IL, UO	5.706	5.106	3.197	2.644	15.714	.001
.45	.36	1.91	1.56	.16	.21	1.61	1.53	.84	1.15	18.99	.001	UP, UA, FW, UF, SE, UK, HS, UG, IL, BC, ED, UO	1.463	1.931	.180	.517	31.44	.001
.04	5.75	7.08	3.10	10.82	4.67	7.39	3.71	14.81	7.56	4.71	.001	UK, HS, UO, ED, IL, UF, BC, UG, FW, UP, UA, SE	8.451	5.466	16.864	6.682	99.82	.001
.56	1.84	1.60	1.64	.26	.24	.96	1.19	4.11	3.61	2.89	.01	UP, IL, BC, UK, FW, HS, UF, UG, ED, UO, UA, SE	1.638	2.110	.712	1.636	10.91	.01
.40	4.19	13.54	3.42	24.61	4.95	16.83	3.91	16.46	4.14	10.35	.001	UO, ED, SE, IL, UA, UG, FW, BC, HS, UF, UP, UK	20.30	6.719	18.03	6.28	3.865	.05
.43	3.96	11.25	3.73	23.98	5.20	15.86	3.54	15.52	3.94	10.50	.001	UO, ED, SE, IL, UA, BC, FW, UG, UF, HS, UP, UK	17.72	6.714	15.826	5.58	4.35	.05
.04	4.63	8.86	3.30	18.85	4.32	12.64	3.55	12.37	3.08	7.66	.001	UO, ED, SE, IL, BC, FW, UG, HS, UF, UA, UP, UK	14.05	5.82	15.14	5.819	1.706	NS
.38	1.82	2.39	1.81	5.09	2.34	3.20	1.85	2.64	1.66	7.30	.001	UA, ED, SE, UO, IL, UG, UF, FW, BC, HS, UP, UK	3.558	2.265	.595	1.252	109.53	.001
.87	1.73	3.51	2.08	7.84	.89	5.46	.61	7.93	2.18	12.78	.001	ED, UA, BC, HS, IL, FW, UG, UK, UF, UP, SE, UO	6.180	2.285	6.207	1.67	.008	NS

Appendix L-2 (Continued)

SPONSOR / VARIABLES	Far West Lab (FW)		U. Arizona (UA)		Bank Street (BC)		U. Georgia (UG)		U. Oregon (UO)		U. Kansas (UK)		High/Scope (HS)		U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)		Interdepend Learning Model (IL)	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
78. Adult asking direct question of children	4.91	1.82	5.19	[illegible]	4.84	1.73	6.28	2.08	6.79	1.84	5.50	2.56	6.45	2.04	6.01	2.24	3.91	1.69	8.05	1.96	5.60	1.6
79. Adult asking open-ended question of children	1.38	1.38	1.54	.85	.32	.30	.14	.17	.19	.20	.81	1.15	1.83	1.31	.34	.26	.47	.46	.49	.67	.49	[illegible]
80. Adult responding to children	1.72	.88	1.78	.05	1.80	1.02	1.96	1.34	.92	.41	1.87	2.13	1.68	.98	1.42	.64	.58	.64	1.67	.78	.98	.7
81. Adult instructing children	10.27	3.71	11.32	4.64	11.55	4.06	13.13	5.88	7.57	3.24	6.11	2.21	6.17	1.87	9.06	5.28	10.62	2.88	7.16	3.33	7.35	1.6
82. Adult instructing children in academic activity	6.24	2.66	3.48	3.33	4.46	2.40	6.76	3.18	5.66	3.23	3.88	2.67	2.46	1.32	5.12	3.09	5.82	2.67	2.38	1.76	4.35	1.6
83. Adult instructing children by using objects	.39	.32	.54	1.04	.41	.68	.15	.24	.002	.01	.07	.11	.50	.46	.40	.93	.70	1.20	.24	.22	.38	[illegible]
84. Adult instructing children in academic activity by using objects	.49	.54	.73	1.04	.26	.45	.34	.51	0.0	0.0	.06	.15	.25	.27	1.73	2.07	.55	.70	.39	.70	.54	[illegible]
85. Adult commenting to children	.46	.48	.74	.75	1.12	.88	.91	.70	.74	.45	.51	.29	.74	.45	.60	.54	.64	.45	.63	.37	1.59	1.4
86. Adult in motion	6.23	2.93	5.97	2.07	4.09	2.98	2.30	1.34	3.21	1.90	6.03	4.32	2.92	1.39	4.82	2.42	12.83	9.69	5.05	2.72	6.12	2.2
87. Adult not interacting with children	5.54	1.63	7.30	3.83	9.12	4.76	6.74	2.26	6.36	2.16	9.19	4.65	4.03	2.05	5.55	3.35	12.41	11.82	2.43	1.59	7.51	2.7
88. Adult praising children	.86	.46	.65	.69	.58	.57	.87	.43	1.79	1.26	5.66	2.37	1.25	.78	.54	.42	.82	.83	2.26	1.15	1.85	1.2
89. Adult priasing children in task-related activity	.70	.14	.53	.55	.56	.55	.83	.42	1.60	1.10	1.34	1.11	1.20	.76	.53	.42	.76	.75	2.13	1.13	1.66	1.1
90. Adult praising children for behavior	.16	.21	.11	.19	.01	.02	.05	.04	.18	.27	2.72	2.32	[illegible]	.07	.01	.01	.04	.08	.09	.09	.19	.3
91. Adult giving specific praise to children	.01	.04	.04	.08	.002	.01	0.0	0.0	.02	.03	.01	.02	.01	.03	.01	.03	.03	.04	.05	.09	.002	.0
92. Adult giving acknowledgment to children	3.53	1.19	3.53	1.59	2.75	1.22	2.41	.93	2.89	1.46	3.34	1.81	3.50	1.24	2.82	1.62	1.48	.62	5.04	1.21	2.91	1.4
93. Adult giving task-related acknowledgment to children	2.96	1.23	3.22	1.47	2.65	1.17	2.26	.85	2.85	1.47	2.88	1.36	[illegible]	1.16	2.54	1.37	1.10	.57	4.88	1.16	2.74	1.4
94. Adult giving non-task-related acknowledgment to children	.59	.44	.29	.32	.09	.08	.04	.07	.04	.05	.49	.58	.40	.45	.28	.47	.39	.38	.15	[illegible]	.19	.1
95. Adult giving nonberbal acknowledgment to children	.08	.09	.04	.07	0.0	0.0	.01	.01	.002	.01	.06	.06	.02	.03	.02	.02	.02	.03	.21	.26	0.0	0.0
96. Adult making productive statement to children	.88	.83	2.59	1.91	.87	1.28	.74	.50	.57	.43	1.31	.61	.43	.43	1.17	.94	.31	.25	1.71	.95	1.79	1.5
97. Adult giving children corrective feedback	2.27	1.49	2.74	1.20	3.79	1.92	2.65	1.64	3.87	1.55	5.80	2.12	4.83	1.94	6.24	1.88	2.85	.93	5.01	1.47	4.27	1.0
98. Adult giving children positive corrective feedback for behavior	1.26	1.11	1.47	.65	.84	.74	.37	.23	1.13	.90	1.19	.77	1.01	.80	1.61	.92	1.22	.60	1.34	.53	1.48	.9
99. Adult giving children positive corrective feedback in task-related activity	.67	.57	.36	.38	2.36	2.02	[illegible]	1.29	2.18	1.45	3.95	2.58	2.20	1.85	2.81	.86	.28	.36	3.33	1.40	1.78	1.0
100. Adult giving children corrective feedback in task-related activity	.58	.55	.33	.34	2.27	2.01	1.31	1.12	1.23	.78	3.01	1.46	1.87	1.75	2.42	.75	.21	.29	2.74	1.27	1.40	.7
101. Adult giving children negative corrective feedback for behavior	.04	.09	[illegible]	.09	.02	.04	.04	.06	.04	.04	.05	.08	.15	.17	.15	.17	.24	.20	.02	.03	.06	.0
102. Adult giving children firm corrective feedback for behavior	.06	[illegible]	.19	.18	.17	.12	.11	.16	.07	.07	.16	.16	.09	.17	.29	.33	.40	.24	.12	.14	.18	.2
103. Adult giving children negative corrective feedback in task-related activity	0.0	0.0	.002	.01	.01	.01	.02	.05	.01	.03	.003	.01	.07	.11	.002	.01	0.0	0.0	.01	.03	.01	.0
104. Adult giving any feedback	6.66	2.49	3.91	2.62	7.12	2.98	5.93	1.64	8.54	2.73	14.89	3.58	9.58	2.37	9.60	2.96	5.15	2.15	12.32	1.83	9.03	1.7
105. Adult giving children feedback for academic response to adult academic direct question	1.04	.67	.67	.68	.88	.88	1.25	.64	1.80	.78	1.44	.72	.84	.55	1.16	.38	.65	.33	2.26	1.30	1.30	1.1

Appendix L-2 (Continued)

U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)		Interdependent Learning Model (IL)		Southwest Lab (SE)		F Ratio Among Sponsors		Ranking of Sponsors by Their Means	All FT		All NFT		F Ratio FT/NFT	
$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D	$\bar{X}$	S.D.	df 11/134	Alpha p<	Low High	$\bar{X}$	S.D.	$\bar{X}$	S.D.	df 1/218	Alpha Level p<
6.01	2 24	3.91	1.69	8.05	1.96	5.60	1.63	4.19	1.09	3.84	.001	ED, BC, SE, FW, UA, ↑UK, IL, UF, UG, HS, UO, UP	5.73	2.15	5.34	1.97	4.69	NS
.34	.26	.47	.46	.49	.67	.49	.25	1.14	.84	8.38	.001	UG, UO, BC, UF, ED, UP, IL, ↑UK, SE, FW, UA, HS	.81	.92	.65	.65	1.78	NS
1.42	.64	.38	.64	1.67	.78	.98	.72	.12	.34	3.27	.001	SE, ED, UO, IL, UF, ↑UP, HS, FW, UA, BC, UK, UG	1.41	1.07	1.48	1.19	.201	NS
9.06	5.58	10.62	2.88	7.16	3.33	7.35	1.69	9.13	2.94	4.81	.001	UK, HS, UP, IL, UO, UF, ↑SE, FW, ED, UA, BC, UG	9.15	4.17	9.60	3.71	.626	NS
5.12	3.09	5.82	2.67	2.38	1.76	4.35	1.65	4.11	2.58	3.82	.001	UP, HS, UA, UK, IL, BC, ↑SE, UF, UO, ED, FW, UG	4.55	2.83	4.89	3.45	.610	NS
.40	.93	.70	1.20	.24	.22	.38	.48	.11	.52	1.2	NS	UO, UK, UG, UP, ↑IL, FW, UF, BC, SE, HS, UA, ED	.38	.64	.37	.75	.03	NS
1.73	2.07	.55	.70	.39	.70	.54	.48	1.18	2.02	3.99	.001	UO, UK, HS, BC, ↑UG, UP, FW, IL, ED, UA, SE, UF	.58	1.077	.33	.66	3.48	.10
.60	.54	.64	.45	.63	.37	1.59	1.46	1.13	.46	2.66	.01	FW, UK, UF, UP, ED, UO, HS, UA, UG, BC, SE, ↑IL	.82	.72	1.16	1.19	7.25	.01
4.82	2.42	12.83	9.69	5.05	2.72	6.12	2.29	5.31	3.30	2.47	.001	UG, HS, UO, BC, UF, UP, SE, ↑UA, UK, IL, FW, ED	5.33	4.42	5.37	4.39	.005	NS
5.55	3.35	12.41	[illegible]	2.43	1.59	7.51	2.70	7.57	6.02	3.72	.001	UP, HS, FW, UF, ↑UO, UG, UA, IL, SE, BC, UK, ED	6.87	5.17	6.17	4.22	1.01	NS
.54	.42	.82	.63	2.26	1.15	1.85	1.26	1.57	.83	20.04	.001	UF, BC, UA, ED, FW, UG, ↑HS, SE, UO, IL, UP, UK	1.49	1.59	.90	.71	9.30	.01
.53	.42	.76	.75	2.13	1.13	1.66	1.14	1.50	.82	5.24	.001	UF, UA, BC, FW, ED, ↑UG, HS, UK, SE, UO, IL, UP	1.11	.93	.81	.65	6.35	.05
.01	.01	.04	.08	.09	.09	.19	.30	.05	.10	15.53	.001	UF, BC, UG, ED, SE, HS, ↑UP, UA, FW, UO, IL, UK	.262	.90	.08	.14	3.06	.10
.01	.03	.03	.04	.05	.05	.002	.01	.002	.01	2.36	.05	UG, IL, BC, SE, FW, HS, UK, UF, ↑UO, ED, UA, UP	.02	.04	.02	.05	.000	NS
2.82	1.62	1.48	.62	5.04	1.21	2.91	1.41	1.04	.91	5.87	.001	ED, SE, UG, BC, UF, UO, IL, ↑UK, HS, UA, FW, UP	3.02	1.52	3.18	1.63	.51	NS
2.54	1.37	1.10	.57	4.88	1.16	2.74	1.40	1.32	.85	6.75	.001	ED, SE, UG, UF, BC, IL, ↑UO, UK, FW, HS, UA, UP	2.76	1.44	2.83	1.48	.12	NS
.28	.47	.39	.38	.15	.18	.19	.10	.11	.17	3.71	.001	UO, UG, BC, SE, UP, IL, UF, UA, ↑ED, HS, UK, FW	.25	.36	.33	.49	1.55	NS
.02	.02	.02	.03	.21	.26	.0.0	0.0	.01	.02	5.80	.001	IL, BC, UO, SE, UG, ED, UF, HS, UA, UK, FW, UP	.04	.10	.04	.07	.003	NS
1.17	.94	.31	.25	1.71	.95	1.79	1.54	1.52	1.03	5.44	.001	ED, HS, UO, UG, BC, FW, UF, UK, ↑SE, UP, IL, UA	1.14	1.16	1.38	1.27	2.02	NS
6.24	1.88	2.83	.93	5.01	1.47	4.27	1.03	4.57	1.45	8.08	.001	FW, UG, UA, ED, BC, UO, IL, ↑HS, SE, UP, UK, UF	4.10	1.96	4.38	1.93	.99	NS
1.61	.92	1.22	.69	1.34	.53	1.48	.91	1.43	.83	2.17	.05	UG, BC, HS, UO, UK, ED, FW, ↑UP, SE, UA, IL, UF	1.19	.83	1.29	.87	.67	NS
2.81	.86	.28	.36	3.33	1.40	1.78	1.06	1.51	1.12	7.65	.001	ED, UA, FW, UG, SE, IL, ↑UO, HS, BC, UF, UP, UK	1.91	1.71	1.79	1.66	2.42	NS
2.42	.73	.21	.29	2.74	1.27	1 40	.79	1.16	.74	7.77	.001	ED, UA, FW, SE, UO, UG, IL, ↑HS, BC, UF, UP, UK	1.53	1.40	1.49	1.52	.04	NS
.13	.17	.24	.20	.02	.03	.06	.05	.23	.17	5.85	.001	UP, BC, FW, UG, UO, UK, IL, UA, ↑UF HS, SE, ED	.09	.14	.14	.19	4.58	.05
.29	.33	.40	.24	.12	.14	.18	.21	.22	.24	3.40	.001	FW, UO, HS, UG, UP, UK, BC, IL, UA, SE, ↑UF, ED	.17	.20	.28	.38	8.26	.01
.002	.01	0.0	0.0	.01	.03	.01	.02	.005	.02	3.38	.001	ED, FW, UA, UF, UK, IL, SE, BC, UO, UP, ↑UG, HS	.01	.05	.01	.05	.01	NS
9.60	2.96	5.15	2.15	12.32	1.83	9.03	1.78	8.38	2.12	13.75	.001	ED, UG, FW, UA, BC, SE, ↑UO, IL, HS, UF, UP, UK	8.62	3.47	8.46	2.38	.124	NS
1.16	.58	.65	.33	2.26	1.30	1.30	1.13	.89	.50	4.65	.001	ED, UA, HS, BC, SE, ↑FW, UF, UG, IL, UK, UO, UP	[illegible]	.87	[illegible]	.80	[illegible]	NS

Appendix [illegible]-2 (Continued)

VARIABLES \ SPONSOR	Far West Lab (FW)		U. Arizona (UA)		Bank Street (BC)		U. Georgia (UG)		U. Oregon (UO)		U. Kansas (UK)		High/Scope (HS)		U. Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)		Inter Le M
	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄
106. Adult giving children feedback for academic response to adult open-end question	.21	.19	.06.	.07	.04	.06	.02	.04	.05	.10	.25	.37	.10	.11	.06	.07	.03	.04	.10	.20	.1
107. Adult not responding to children	.19	.18	.07	.08	.06	.07	.06	.06	.06	.04	.04	.05	.15	.15	.11	.14	.08	.11	.07	.06	.0
108. Adult attentive to children	7.05	3.69	9.37	6.16	6.34	4.25	6.16	3.08	9.31	5.93	7.37	3.95	4.68	3.54	6.54	3.90	7.61	4.89	2.77	1.74	3.9
109. All positive behavior	2.07	1.13	2.18	1.85	1.88	2.12	1.34	1.40	.25	.41	.72	.57	1.03	.89	1.21	1.05	1.44	1.77	.73	.63	1.5
110. Adult showing positive behavior	.86	.67	1.44	1.36	1.01	1.23	.78	1.001	.20	.08	.45	.30	.31	.34	.75	.89	.97	1.49	.54	.49	.4
111. All negative behavior	.22	.20	.25	.23	.09	.08	.14	.16	.05	.05	.08	.13	.30	.30	.26	.34	.39	.38	.04	.04	.1
112. Adult showing negative behavior	.05	.10	.19	.21	.04	.06	.08	.11	.05	.05	.05	.09	.16	.17	.23	.32	.25	.19	.02	.03	.0
113. Adult giving child positive touch	.02	.03	.08	.14	.03	.04	.03	.05	.01	.01	.02	.03	.02	.05	.02	.04	.03	.05	.04	.08	.0
114. Adult giving child negative touch	.003	.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.002	.01	0.0	0.0	0.0	0.0	0.0
115. Adult giving child punishing touch	.01	.04	.03	.06	.002	.01	.002	.01	.01	.02	.01	.01	.02	.03	.02	.03	.04	.07	.03	.05	.0
116. Academic events	14.12	3.50	9.03	6.36	12.18	4.62	18.89	4.99	20.87	5.52	16.15	3.34	8.15	4.18	17.32	4.95	11.87	3.49	14.74	5.45	15.1
117. Adult interacting with child or children in task-related activity	19.52	3.15	16.90	4.15	17.63	6.37	17.12	3.57	12.88	4.30	24.14	2.87	17.16	3.83	18.23	3.84	11.69	3.27	21.12	4.67	14.0
118. Adult instructing children in nonacademic activity without using objects	2.94	1.15	6.43	4.11	6.30	4.49	5.62	4.37	1.89	1.39	2.07	1.49	2.76	1.37	1.55	1.26	3.46	2.16	4.01	2.43	1.8
119. Everyone interacting	2.03	1.84	.83	1.03	.76	1.53	.18	.30	.33	.65	.04	.06	1.28	1.42	1.05	1.16	.70	.93	.33	.31	1.3
120. Adult interacting with adult	8.16	2.33	11.18	5.30	14.12	5.96	9.82	4.17	5.83	2.57	10.47	4.46	8.65	4.19	9.38	4.23	25.27	9.11	4.81	1.28	11.4

Appendix L-2 (Continued)

Florida (UF)		Educational Development Center (ED)		U. Pittsburgh (UP)		Interdependent Learning Model (IL)		Southwest Lab (SE)		F Ratio Among Sponsors		Ranking of Sponsors by Their Names	All FT		All NFT		F Ratio FT/NFT	
	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	11/134	p<	Low High	$\bar{X}$		$\bar{X}$		df 1/218	Alpha Level p<
06	.07	.03	.04	.10	.20	.10	.12	.08	.07	2.76	.01	UG, ED, BC, UO, UF, UA, ↓SE, IL, UP, HS, FW, UK	.09	.15	.07	.10	.612	NS
11	.14	.08	.11	.07	.06	.07	.07	.12	.15	1.91	.05	UK, UO, BC, UG, UA, IL, UP, ED, ↓UF, SE, HS, FW	.09	.11	.10	.14	.111	NS
54	3.90	7.61	4.89	2.77	1.74	3.90	2.62	6.13	5.37	2.61	.01	UP, IL, HS, SE, UG, BC, UF, ↓FW, UK, ED, UO, UA	6.37	4.52	6.87	4.75	.571	NS
21	1.05	1.44	1.77	.73	.63	1.50	1.26	1.31	1.26	2.32	.05	UO, UK, UP, HS, UF, ↓SE, UG, ED, IL, BC, FW, UA	1.30	1.36	1.26	1.33	.052	NS
75	.89	.97	1.49	.54	.49	.47	.48	.93	1.12	2.01	.05	UO, HS, UK, IL, UP, ↓UF, UG, FW, SE, ED, BC, UA	.71	.93	.54	.73	1.77	NS
26	.34	.39	.38	.04	.04	.10	.07	.35	.24	3.68	.001	UP, UO, UK, BC, IL, UG, FW, UA, ↓UF, HS, SE, ED	.19	.24	.26	.33	3.14	.10
23	.32	.25	.19	.02	.03	.06	.06	.28	.22	4.15	.001	UP, BC, UO, UK, FW, IL, UG, HS, ↓UA, UF, ED, SE	.12	.18	.18	.27	3.75	.10
02	.04	.03	.05	.04	.08	.06	.09	.08	.09	1.46	NS	UO, FW, HS, UK, UF, ↓BC, UG, ED, UP, IL, SE, UA	.02	.07	.03	.09	.03	NS
002	.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.92	NS	SE, IL, UP, ED, HS, UK, UO, UG, BC, UA, UF, ↓FW	.00	.04	.00	.00	.002	NS
02	.03	.04	.07	.03	.05	.002	.01	.03	.05	1.29	NS	IL, BC, UG, UK, UO, FW, HS, UF, SE, UA, UP, ↓ED	.02	.04	.03	.07	5.4	.05
32	4.95	11.87	3.49	14.74	5.45	15.13	7.05	13.10	5.49	17.18	.001	HS, UA, ED, BC, SE, ↓FW, UP, IL, UK, UF, UG, UO	14.10	6.10	14.00	6.26	.01	NS
23	3.84	11.69	3.27	21.12	4.67	14.06	4.37	12.32	3.11	9.42	.001	ED, SE, UO, IL, ↓UA, UG, HS, BC, UF, FW, UP, UK	16.81	5.21	15.16	4.96	5.04	.05
65	1.26	3.46	2.16	4.01	2.43	1.85	1.79	3.03	1.62	5.41	.001	UF, IL, UO, UK, HS, FW, SE, ED, ↓UP, UG, BC, UA	3.49	2.99	3.86	2.48	.82	NS
05	1.16	.70	.93	.33	.31	1.30	1.51	1.77	2.30	2.84	.01	UK, UG, UO, UP, ED, BC, UA, UF, ↓HS, IL, SE, FW	.91	1.36	1.10	1.45	1.00	NS
88	4.23	25.27	9.11	4.81	1.28	11.44	4.22	11.08	8.11	12.27	.001	UP, UO, FW, HS, ↓UF, UG, UK, SE, UA, IL, BC, ED	10.80	7.01	8.98	5.90	3.67	.10

Appendix M

CHANGES IN CLASSROOM OBSERVATION VARIABLES FROM 1970-71 TO 1971-72

Appendix M

CHANGES IN CLASSROOM OBSERVATION VARIABLES FROM 1970-71 TO 1971-72

1. 1970-71 Variables

    1. Lunch, snack
    2. Group time, story, singing, dancing
    3. Arithmetic, numbers, mathematics, reading, alphabet, language development
    4. Social studies, geography, science, natural world
    5. Games, puzzles
    6. Arts, crafts, sewing, cooking, pounding, sawing
    7. Blocks, trucks, dolls, dress-up
    8. Adult with small group in academic activities
    9. Academic activities

    [*]10. Independent child activities

    11. Wide variety of activities

    [*]12. Adult with one or two children in all activities

    [*]13. Aide participating in academic activities

    [*]14. Adult informing child symbolically

    15. Adult asking child a direct question

    [*]16. Direct question followed by child response

    [*]17. Adult praise and corrective feedback

    [*]18. Child response followed by adult feedback

    19. Adult informing child

    20. Adult asking child thought-provoking questions

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[*] These variables were altered, refined, or deleted in creating the 1971-72 classroom observation variables.

[*]21. Adult informing child with concrete objects
22. Adult acknowledgment
23. Child informing self with objects
[*]24. All child self-learning
[*]25. Child informing another child
[*]26. Child informing self symbolically
[*]27. Child questioning adult
[*]28. Child self-expression
[*]29. Adult communication focus--one or two children
30. Adult communication focus--small group
31. Adult communication focus--large group
[*]32. Adult praise/acknowledgment of child
[*]33. Adult positive corrective feedback
[*]34. Adult negative corrective feedback
35. Adult negative affect
36. Child negative affect
37. All negative affect
[*]38. Adult to child positive affect
39. Child to adult positive affect
40. All positive affect
41. Child positive affect
42. Adult/child ratio
43. Active play
[*]44. Adult with one or two children in academic activities
[*]45. Adult with large group in academic activities
[*]46. Child response → adult acknowledgment
[*]47. Child response → adult praise
[*]48. Adult question → child response → adult corrective feedback

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[*] These variables were altered, refined, or deleted in creating the 1971-72 classroom observation variables.

*49. Adult question → child response → adult praise

*50. Adult question → child response → adult acknowledgment

51. Adult thought-provoking question → child response

52. Thought provoking question → child response → child elaboration

*53. All feedback

*54. Adult neutral corrective feedback

*55. Child self-learning

56. Adult positive affect

*57. Adult to child negative affect

58. Child to adult negative affect

59. Adult to child positive touch

60. Adult to child negative touch

*61. Child to child positive touch

*62. Child to child negative touch

*63. Child to adult positive touch

*64. Child to adult negative touch

*[illegible]. Child working with materials

*66. Use of symbols

67. Use of concrete objects

*68. Movement

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*These variables were altered, refined, or deleted in creating the 1971-72 classroom observation variables.

2. 1971-72 FMO Variables

Improvements on the 1970-71 FMO variables for the present analysis fall into three partially overlapping groups of new variables:

(1) Variables made possible by changes in the codes of the COI.

(2) Variables refined because they were inclusive of generally similar events.

(3) Variables made possible by the addition of the observations focused on the child.

a. New Variables Permitted by Category/Code Changes

The first group of new variables above comprises those that could be added because a new category had been added and those that could be added because a new code use was employed on the FMO instrument. Six new variables could be added because of a replacement of the How category "angry" (symbolized by A) by a new category, "academic." Angry behavior was subsumed as part of an existing category, "negative behavior" (coded "-"), and the A could then stand for math and reading activities. The six new variables are:

FMO-20	Child responding with academic theme
FMO-24	Child instructing self in academic activity
FMO-26	Child instructing self in academic activity by using objects
FMO-82	Adult instructing children in academic activity
FMO-84	Adult instructing children in academic activity by using objects
FMO-118	Adult instructing children in nonacademic activity without using objects.

The addition of these new variables enabled responses in math and reading (3A) to be distinguished from responses in other areas (3). In addition, the What category "instruction" (symbolized by 4) became available to describe other kinds of teaching besides that in math and reading (4 vs. 4A). The capability to code separately the self-instruction going on when children are painting or playing with blocks (CC-4) and the self-instruction when children are working on arithmetic and numbers (CC-4A) was regarded as essential to represent activity important in such models as EDC and U. Arizona that were poorly served by assuming all instruction to be academic. This and several other improvements in the FMO categories attempted to reduce bias against the less structured, less academically oriented models.

Another category redefined was a *What* category measuring cooperative behavior (8). Cooperation was deemed a modifier of an action rather than an action itself and so was changed to a *How* code (C). The 8 could then be used to indicate "productive statements," distinguishing them from other kinds of comments. The 5 code had represented the "comments" category; it had been too broad and inclusive, almost an "other" category for the *What* codes. With the new category, a constructive conversation between two children about the care and feeding of the animals in the classroom, which had been coded 5 in the same category as morning greetings, could now be coded 8 as productive or task-related statements. Three new variables were thus made possible:

FMO-38	Child making productive statement
FMO-39	Other children making productive statement to child
FMO-96	Adult making productive statement to children.

The *What* codes for feedback (6, 7, and 9), were newly modified by the code Sy (standing for subject matter content), to distinguish praise, acknowledgment, or corrective feedback during a learning-teaching episode from feedback for social behavior (6, 7, or 9, unmodified by Sy). The new variables thus permitted are:

FMO-89	Adult praising children in task-related activity
FMO-90	Adult praising children for behavior
FMO-93	Adult giving task-related acknowledgment to children
FMO-94	Adult giving non-task-related acknowledgment to children
FMO-98	Adult giving children positive corrective feedback for behavior
FMO-99	Adult giving children positive corrective feedback in task-related activity

FMO-100	Adult giving children corrective feedback in task-related activity
FMO-101	Adult giving children negative corrective feedback for behavior
FMO-102	Adult giving children firm corrective feedback for behavior
FMO-103	Adult giving children negative corrective feedback
FMO-117	Adult interacting with children in task-related activity.

One of the most important dimensions differentiating sponsors' theories of instruction and learning is the dimension of motivation, with its concomitants of reinforcement, feedback, punishment, and so forth. Even approaches that are relatively close together in their theories about control of learning and other behavior in the classroom (e.g., U. Oregon and U. Kansas) have different emphases. In U. Kansas classrooms, for example, one would expect to see more positive feedback for non-task-related behavior than in U. Oregon classrooms, since U. Kansas prescribes more of a mixture of academic activity periods and social activity periods. Since U. Kansas used token reinforcements, there might also be more praise for individuals in the U. Kansas model. More praise for small groups, on the other hand, might be found in the U. Oregon model.

Without going into detailed justification of the other variables made possible through modifying categories on the COI. The new variables and some statement of their purpose are listed below:

COI Code or Code Combination	Variable	Purpose and Comments
11	FMO-42 Child waiting	Some teaching styles (e.g., U. Kansas and Southwest Lab) imply more waiting on the part of the child.
L	FMO-59 Child sharing life experiences	Especially for EDC, Bank Street, and U. Arizona, stressing self-concept, creativity, and imagination.
I	FMO-60 Child showing imagination	
1Q	FMO-78 Adult asking direct question of children	All sponsors wish to distinguish questions (1Q) from requests and commands (the "1" code unmodified by Q).
X	FMO-86 Adult in motion	Especially to capture roving teacher (as in U. Pittsburgh program).
65	FMO-91 Adult giving specific praise to children	Most sponsors agree that general praise is less instructive than praise for performance of a specific act.

b. New Variables Refined from Previous Variables

The second group of new variables comprises those that were added by refining a previous variable, to make variables less general by breaking down an original into its components. It was not certain whether the size of the sample of the refined variable occurrences would be sufficiently great for use in analyses, but it seemed important:

(a) To distinguish sheer adult/child ratio from specific adult attention to specific child behaviors, to get more useful predictors of achievement and self-development.

(b) To break down positive and negative feedback on the part of adults, as discussed above.

(c) To distinguish different kinds of actions initiated by the child that might be a function of his confidence in social-interaction, and of the encouragement of such confidence in certain models.

The new variables in this second group are listed below:

(a)	FMO-61	Adult interacting with one child
	FMO-62	Adult interacting with two children
	FMO-65	Teacher interacting with one child
	FMO-66	Aide interacting with one child
	FMO-67	Aide interacting with two children
	FMO-68	Teacher interacting with two children
	FMO-69	Teacher interacting with small group
	FMO-70	Aide interacting with small group
	FMO-72	Aide interacting with large group
	FMO-74	Adult initiating interaction with child
	FMO-75	Teacher initiating interaction with child
	FMO-76	Aide initiating interaction with child
(b)	FMO-88	Adult praising children
	FMO-92	Adult giving acknowledgment to children
	FMO-95	Adult giving nonverbal acknowledgment to children
	FMO-97	Adult giving children corrective feedback
	FMO-107	Adult not responding to children
	FMO-115	Adult giving child punishing touch
(c)	FMO-13	Child initiating interaction with a machine
	FMO-14	Machine initiating interaction with a child
	FMO-15	Child giving request or command
	FMO-16	Child asking direct question
	FMO-17	Child asking open-ended question
	FMO-18	Child asking question
	FMO-50	Child showing positive behavior

FMO-53	Child showing negative behavior
FMO-109	All positive behavior
FMO-111	All negative behavior.

c. New Variables Made Possible by the Addition of Child-Focused Observations

In earlier uses of the COI, teachers and aides were the only foci of observation. Since the classroom adults are the vehicles through which the sponsors have implemented their educational models, a reasonable assumption was that adult behavior could best reflect the presence of the model. However, since some sponsors have merely shared their educational philosophy with teachers and aides rather than giving them specific training and instruction in administering a curriculum, and since some models have been described in terms of the behavior expected of children (e.g., persistence at tasks, openness with the teacher) or in terms of "classroom atmosphere," it appeared that observations of children would be another way to reflect the presence of the model. It also appeared that descriptions of the models based on children's behavior might include variables of more interest to sponsors with unstructured nonacademically oriented models. Such thinking led to focus on the child and to the development of a new set of variables.

Since this list of variables is long, a full discussion of the rationale for each variable would be too cumbersome for the present report. Therefore, a brief indication of purpose is given beside the variables on the list below:

Variable	Description
FMO-1	Child talking to adult
FMO-2	Child initiating interaction with adult
FMO-3	Child initiating interaction with teacher
FMO-4	Child initiating interaction with aide
FMO-5	Child talking to other children
FMO-6	Other children talking to child
FMO-7	Child not interacting with anyone
FMO-8	Child initiating interaction with different child

Variable	Description
FMO-9	Different child initiating interaction with child
FMO-32	Child commenting to adult
FMO-36	Child giving praise
FMO-37	Child giving acknowledgment

Comment: Far West Lab, Bank Street, and EDC particularly encourage children to initiate interactions rather than merely be responsive to adults.* These sponsors undoubtedly endorse the position that a child who expresses himself freely and initiates interactions with adults is one who has more self-confidence and less (noninstrumental)† dependency.

Variable	Description
FMO-10	Child initiating interaction with two children
FMO-11	Two children initiating interaction with child
FMO-28	Other children instructing child
FMO-33	Child commenting to other children
FMO-34	Other children commenting to child
FMO-40	Child giving corrective feedback
FMO-58	Child cooperating with other children

Comment: Besides general interest in socialization and cooperation with peers, some models (e.g., ILM) depend on children working with one another in game situations to teach one another.

Variable	Description
FMO-29	Child task persistent in self-instruction
FMO-30	Child inattentive to teacher or machine
FMO-35	Child participating in general action

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*David Weikart (1972) wrote that the "teacher initiates/teacher responds" and "child initiates/child responds" dimensions describe the major methodological differences among sponsors.

†A term used by Kuno Beller (1969) to distinguish children with (1) emotional dependency, often indicating less maturity in primary children, and (2) instrumental dependency, in which the child can use the adults' knowledge or power to help him.

Variable	Description
FMO-41	Child not responding
FMO-43	Child attentive
FMO-44	Child attentive to other children
FMO-45	Child attentive to adult
FMO-46	Child attentive to a machine
FMO-47	Child nonverbal
FMO-48	All child motion
FMO-57	Child engaged in task-related activity

Comment: Sponsors differ on whether the child is viewed as a passive learner, with the teacher being the agent responsible for his instruction, or as an active learner in an enticing environment, responsible in great part for his own learning. No sponsor states that inattention is desirable. It would be expected by all to be associated with poor performance.

FMO-49	Child happy
FMO-51	Other children showing positive behavior to child
FMO-52	Child showing negative behavior
FMO-54	Other children showing negative behavior to child
FMO-55	Child giving positive touch
FMO-56	Child giving negative touch

Comment: Several sponsors give emotional growth and development at least equal emphasis with intellectual development. In their classes, indicators of emotional expression are more important than they are in academically oriented model classes.

Appendix N

RELIABILITY AND UNIFORMITY OF OBSERVER PROCEDURES

Appendix N

RELIABILITY AND UNIFORMITY OF OBSERVER PROCEDURES

1. Classroom Observer Frame Counts and Number of FMOs

The number of COPs completed per day on the number of frames per FMO for observers were compared. These rates (COP/day; frames/FMO) provided indirect measures of how smoothly and uniformly the observation procedures were carried out.

Table N-1

MEANS AND STANDARD DEVIATIONS OF THE NUMBER OF FRAMES PER FMO PER OBSERVER OR SELECTED SPONSORS (CHILD-FOCUSED)

Sponsor	Obs.#	No. FMOs	No. Frames/ FMO	SD	Sponsor Means
			K, 1/ek, 2/ek		
FW	4025	181	85.09	23.02	
	4026	182	88.09	22.83	83.90
	4029	188	78.70	17.41	
UP	4017	182	80.71	12.57	
	4018	190	76.08	13.90	74.97
	4031	188	68.29	15.51	
IL	4006	190	78.86	12.59	
	4007	191	73.07	14.95	79.48
	4008	191	86.51	17.15	
SE	4038	186	80.20	13.58	
	4039	182	91.78	17.74	81.34
	4040	193	72.59	10.36	
			1/ef, 2/ef, 3/ef		
UA	4013	184	90.32	21.63	
	4034	181	83.08	16.12	88.23
	4037	186	91.16	27.29	
BC	4000	189	73.67	15.46	
	4001	184	71.99	12.85	78.52
	4002	190	89.67	22.45	
UG	4009	189	82.53	16.47	
	4010	192	89.16	15.17	86.32
	4035	184	87.26	18.69	
UF	4028	192	83.85	16.37	
	4032	189	84.17	18.03	81.13
	4042	169	74.63	1.62	

Table N-2

MEANS AND STANDARD DEVIATIONS OF THE NUMBER OF FRAMES PER FMO OBSERVER FOR SELECTED SPONSORS (ADULT-FOCUSED)

Sponsor	Obs.#	No. FMOs	No. Frames/ FMO	SD	Sponsor Means
K, 1/ek, 2/ek					
FW	4025	206	63.95	6.74	66.59
	4026	210	68.30	5.81	
	4029	188	67.57	7.23	
UP	4017	189	71.67	6.23	67.75
	4018	200	72.07	5.56	
	4031	202	59.82	7.13	
IL	4006	227	63.34	5.08	65.13
	4007	253	63.20	8.46	
	4008	235	68.95	4.13	
SE	4038	207	72.44	4.84	72.57
	4039	215	73.53	3.01	
	4040	200	71.67	4.75	
1/ef, 2/ef, 3/ef					
UA	4013	224	74.06	3.63	71.17
	4034	222	73.43	9.26	
	4037	234	66.25	5.93	
BC	4000	212	70.91	6.15	72.40
	4001	233	72.95	3.79	
	4002	214	73.29	2.63	
UG	4009	235	74.76	2.24	68.41
	4010	240	67.09	5.13	
	4035	209	62.80	5.87	
UF	4028	238	67.90	6.02	69.52
	4032	236	69.21	7.33	
	4042	224	71.57	4.03	

Table N-3

MEAN NUMBER OF COPs PER DAY BY OBSERVER WITHIN SPONSOR

Sponsor	Observer Number	Child Focused COPs/Day	Adult Focused COPs/Day	Sponsor	Observer Number	Child Focused COPs/Day	Adult Focused COPs/Day
FW	4025	16.0	18.4	UF	4028	16.0	20.0
	4026	16.0	17.8		4042	16.0	19.7
	4029	16.4	16.1		4032	15.9	20.0
UA	4013	16.0	19.9	ED	4022	16.0	16.0
	4037	16.0	20.0		4023	15.8	15.6
	4034	16.0	20.0		4036	15.8	18.3
BC	4002	16.0	18.6	UP	4017	16.0	17.8
	4001	15.3	19.8		4018	16.0	17.3
	4000	15.8	18.3		4031	16.3	17.6
UG	4035	16.0	18.2	IL	4006	16.0	19.6
	4010	16.0	20.0		4007	16.0	19.6
	4009	16.0	20.0		4008	16.0	19.7
UO	4016	15.8	20.0	SE	4038	15.6	18.1
	5015	16.0	20.0		4039	15.3	18.1
UK	4019	16.1	19.7		4040	15.0	18.1
	4020	15.8	19.0				
	4021	16.0	19.1				
HS	4005	16.0	19.1				
	4004	16.1	19.3				
	4003	16.0	18.6				
	4030	16.3	19.9				

Table N-4

SUMMARY OF DISRUPTIONS IN CLASSROOM ACTIVITIES AND CLASSROOM OBSERVATIONS DUE TO OUTSIDE EVENTS

Sponsor	Grade	Event
HS	2-FT	Thunderstorm affected lighting and heating.
HS	K-FT	Bad storm with tornado warning disrupted regular schedule. Chairs stacked up and children taken to safer side of room; arts and crafts all day.
UP	1-NFT	Extremely high noise level; school closed at 10:30 due to blizzard.
UP	K-FT	Blizzard.
SE	K-FT	CO's not completed due to fire.
SE	2-FT	Unseasonal (hot) weather for two days. Observer says it "seemed to affect everyone."

2. Percent Agreement for Trainer/Observer Pairs

The data presented on the following pages show the agreement, in percent, between members of each trainer/observer pair. For each sponsor, the pair agreement is shown for all observers. The percent recorded is calculated by dividing the total number of individual WHO, WHAT, or HOW codes recorded by the total number of frames recorded. This same calculation is made for both the observer and the trainer. The difference between the two percentages is shown, followed by the percentage of agreement of the observer with the trainer.

In some cases where only one observer differed frequently and the others were acceptably reliable, the effects on the data of the differing observer were somewhat relieved because the site data were pooled in the analysis. This can be seen in Section VI of the text. Each observer observed at varying grade levels so that no one grade level was penalized for an observer who differed consistently from the others.

SPONSOR	TRAINER (T) / OBSERVER (O)	WHO			WHAT													
		ADULT	CHILD	OTHER	1 (NO Q)	1Q OR 1QSY	2	3	4	5	6	7	8	9	10	11	12	NV
FW	% recorded* by T # 1465	55.87	42.38	1.75	8.93	11.91	1.93	22.24	26.27	3.15	.53	5.25	3.15	4.73	.88	0.00	11.03	8.58
	% recorded* by O # 4029	61.67	38.33	0.00	9.53	9.14	4.47	20.43	31.71	5.45	.58	5.84	4.09	5.25	1.56	0.00	1.95	7.39
	Difference	5.81	-4.05	-1.75	.60	-2.76	2.55	-1.81	5.44	2.30	.06	.58	.93	.52	.68	0.00	-9.09	-1.19
	% T/O Agreement	90.59	90.43	-99.00	93.69	76.78	43.05	91.85	82.84	57.87	90.02	90.02	77.16	90.02	56.26	-99.00	17.63	86.15
FW	% recorded* by T # 1465	54.38	45.62	0.00	6.45	14.98	2.53	24.65	16.59	10.14	.23	4.84	8.99	3.92	.92	0.00	5.76	14.98
	% recorded* by O # 4025	57.83	42.17	0.00	9.97	12.54	5.13	22.51	13.11	10.83	.28	5.98	7.69	.85	1.42	0.00	9.69	11.69
	Difference	3.46	-3.46	0.00	3.52	-2.44	2.59	-2.15	-3.48	.69	.05	1.14	-1.29	-3.06	.50	0.00	3.93	-3.30
	% T/O Agreement	96.02	92.42	-99.00	64.70	83.70	49.42	91.29	79.00	93.65	80.88	80.88	85.60	21.82	64.70	-99.00	59.47	77.99
UA	% recorded* by T # 2043	59.28	40.55	.17	15.64	9.11	1.03	31.27	7.39	4.64	2.75	5.15	15.81	3.44	0.00	0.00	3.78	18.73
	% recorded* by T # 4013	71.14	28.01	.85	8.32	17.49	.34	24.79	4.75	17.66	2.38	5.94	11.54	1.19	.34	0.00	5.26	4.75
	Difference	11.86	-12.54	.68	-7.32	8.38	-.69	-6.48	-2.63	13.02	-.37	.79	-4.26	-2.25	.34	0.00	1.48	-13.97
	% T/O Agreement	83.33	69.08	20.24	53.21	52.08	32.94	79.27	64.34	26.27	86.46	86.75	73.03	34.58	-99.00	-99.00	71.82	25.38
UA	% recorded* by T # 2043	60.46	37.26	2.28	17.11	5.32	.95	24.52	7.79	11.79	2.66	6.46	13.88	4.56	.19	0.00	4.75	17.87
	% recorded* by O # 4037	72.53	24.18	3.30	13.53	8.35	1.76	20.88	8.13	10.99	1.76	4.40	10.11	9.23	.88	0.00	9.89	11.43
	Difference	12.07	-13.09	1.02	-3.48	3.03	.81	-3.65	.34	-.80	-.90	-2.07	-3.77	4.67	.69	0.00	5.14	-6.44
	% T/O Agreement	83.36	64.88	69.20	79.64	63.74	54.06	95.14	95.85	93.23	66.06	68.00	72.85	49.43	21.63	-99.00	48.06	63.95
UA	% recorded* by T # 2043	76.90	21.30	1.91	5.60	9.21	.18	15.88	11.55	18.59	.90	3.25	24.91	5.60	.18	0.00	4.15	16.61
	% recorded* by O # 4034	80.00	19.27	.73	4.59	9.36	1.10	19.45	14.86	24.40	.37	.92	15.41	3.12	.92	0.00	5.50	18.35
	Difference	3.10	-2.03	-1.07	-1.01	.15	.92	3.57	3.31	5.81	-.54	-2.33	-9.50	-2.48	.74	0.00	1.35	1.74
	% T/O Agreement	96.12	90.45	40.66	81.98	98.38	16.40	81.67	77.73	76.19	40.66	28.24	61.87	55.74	19.68	-99.00	75.42	90.51
BC	% recorded* by T # 2165	60.71	39.12	.17	19.90	13.78	.34	33.16	7.99	2.38	6.63	3.40	3.91	5.44	1.36	0.00	1.70	5.95
	% recorded* by O # 4001	65.27	34.73	0.00	13.26	16.44	0.00	32.89	8.72	2.01	7.72	8.72	1.17	6.54	.17	0.00	2.35	2.18
	Difference	4.55	-4.38	-.17	-6.64	2.67	-.34	-.28	.73	-.37	1.09	5.32	-2.74	1.10	-1.19	0.00	.65	-3.77
	% T/O Agreement	93.02	88.79	-99.00	66.62	83.78	-99.00	99.16	91.61	84.56	85.94	38.98	30.03	83.17	12.33	-99.00	72.40	36.64
UG	% recorded* by T # 1474	71.86	28.14	0.00	4.02	22.11	0.00	24.12	22.78	1.34	2.51	9.72	2.35	5.19	1.17	0.00	4.69	9.55
	% recorded* by O # 4009	70.57	29.43	0.00	6.19	22.07	0.00	23.91	23.91	2.01	2.34	5.52	2.01	3.68	2.01	0.00	6.35	9.70
	Difference	-1.29	1.29	0.00	2.17	-.04	0.00	-.21	1.13	.67	-.17	-4.20	-.34	-1.51	.83	0.00	1.66	.15
	% T/O Agreement	98.20	95.61	-99.00	64.97	99.83	-99.00	99.14	95.26	66.78	93.18	56.80	85.57	70.85	58.43	-99.00	73.81	98.44
UG	% recorded* by T # 1474	61.08	38.92	0.00	9.20	11.56	.47	22.17	25.00	14.15	.24	3.54	2.36	6.13	.24	.24	4.72	18.16
	% recorded* by O # 4010	60.28	39.72	0.00	10.16	10.62	.23	29.10	20.09	13.63	0.00	.69	3.70	6.70	.46	0.00	4.62	17.78
	Difference	-.81	.81	0.00	.96	-.93	-.24	6.93	-4.91	-.53	-.24	-2.84	1.34	.57	.23	-.24	-.10	-.38
	% T/O Agreement	98.68	97.97	-99.00	90.52	91.93	48.96	76.19	80.37	96.29	-99.00	19.58	63.83	91.56	51.06	-99.00	97.92	97.92

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*% recorded = $\frac{\text{Total number of individual Who, What or How codes recorded}}{\text{Total number of frames recorded}}$

HQW

9	10	11	12	NV	X	+	-	A	T	G	H	C	D	F	P	L	S	I	SY	O	BLANK	MULT
3	.88	0.00	11.03	8.58	3.85	4.20	0.00	25.74	0.00	0.00	0.00	.18	11.91	0.00	0.00	1.58	0.00	0.00	7.53	.18	45.53	.18
25	1.56	0.00	1.35	7.39	4.28	1.56	.39	35.02	0.00	.58	0.00	0.00	9.34	0.00	0.00	1.17	0.00	0.00	10.12	.58	34.26	6.23
62	.68	0.00	-9.09	-1.19	.43	-2.65	.39	9.28	0.00	.59	0.00	-.18	-2.57	0.00	0.00	-.41	0.00	0.00	2.59	.41	-11.29	6.05
02	56.26	-99.00	17.63	86.15	90.02	37.03	-99.00	73.51	-99.00	-99.00	-99.00	-99.00	78.42	-99.00	-99.00	74.06	-99.00	-99.00	74.44	30.01	75.20	2.81
2	.92	0.00	5.76	14.98	5.76	2.53	.69	13.13	0.00	1.15	0.00	0.00	15.67	.23	0.00	15.44	0.00	0.00	6.84	.92	43.78	0.00
5	1.42	0.00	9.69	11.68	6.84	1.42	.28	17.66	0.00	.57	0.00	0.00	12.54	0.00	0.00	10.26	0.00	0.00	5.70	.85	47.58	3.13
6	.50	0.00	3.93	-3.30	1.08	-1.11	-.41	4.53	0.00	-.58	0.00	0.00	-3.13	-.23	0.00	-5.18	0.00	0.00	.86	-.07	3.80	3.13
2	64.70	-99.00	57.47	77.99	84.25	56.20	41.22	74.35	-99.00	49.46	-99.00	-99.00	80.01	-99.00	-99.00	66.44	-99.00	-99.00	86.92	92.74	92.01	-99.00
4	0.00	0.00	3.78	18.73	4.12	10.48	.17	13.40	0.00	.86	0.00	0.00	10.65	0.00	0.00	.17	0.00	0.00	6.70	1.03	54.47	1.03
9	.34	0.00	5.26	4.75	5.09	3.57	0.00	2.72	0.00	.17	.17	0.00	18.00	.34	0.00	.34	0.00	0.00	7.98	0.00	66.55	0.00
25	.34	0.00	1.48	-13.97	.97	-6.92	-.17	-10.69	0.00	-.69	.17	0.00	7.34	.34	0.00	.17	0.00	0.00	1.28	-1.03	12.09	-1.03
8	-99.00	-99.00	71.82	25.38	80.96	34.02	-99.00	20.27	-99.00	19.76	-99.00	-99.00	59.19	-99.00	-99.00	50.60	-99.00	-99.00	83.98	-99.00	81.84	-99.00
6	.19	0.00	4.75	17.87	10.46	3.42	.19	15.40	0.00	.76	0.00	0.00	5.89	.38	0.00	.57	0.00	1.71	8.17	1.52	59.13	1.33
3	.88	0.00	9.89	11.43	7.47	.44	0.00	9.45	.66	.66	1.32	.22	8.79	.66	0.00	.22	0.00	1.76	5.49	3.30	66.15	0.00
7	.69	0.00	5.14	-6.44	-2.98	-2.98	-.19	-5.95	.66	-.10	1.32	.22	2.90	.28	0.00	-.35	0.00	.05	-2.68	1.78	7.03	-1.33
3	21.63	-99.00	48.06	63.95	71.46	12.84	-99.00	61.37	-99.00	86.70	-99.00	-99.00	67.04	57.67	-99.00	38.53	-99.00	97.31	67.21	46.13	89.38	-99.00
0	.18	0.00	4.15	16.61	12.09	2.53	.36	10.47	.54	1.26	1.08	0.00	9.93	.90	0.00	1.81	0.00	1.08	3.43	0.00	64.80	1.08
2	.92	0.00	5.50	18.35	8.44	6.42	.18	10.09	0.00	1.65	.55	0.00	9.72	.18	.18	1.28	0.00	0.00	1.28	0.00	66.79	1.65
8	.74	0.00	1.35	1.74	-3.65	3.89	-.18	-.38	-.54	.39	-.53	0.00	-.20	-.72	.18	-.52	0.00	-1.08	-2.15	0.00	1.99	.57
4	19.68	-99.00	75.42	90.51	69.79	39.35	50.83	96.39	-99.00	76.51	50.83	-99.00	97.95	20.33	-99.00	71.16	-99.00	-99.00	37.45	-99.00	97.02	65.58
4	1.36	0.00	1.70	5.95	3.06	.85	.17	33.33	0.00	.17	.17	0.00	13.78	.34	0.00	0.00	0.00	0.00	10.88	0.00	37.07	.51
4	.17	0.00	2.35	2.18	2.68	.67	0.00	37.42	0.00	0.00	0.00	0.00	16.44	.17	0.00	0.00	0.00	0.00	20.13	0.00	22.82	1.17
0	-1.19	0.00	.65	-3.77	-.38	-.18	-.17	4.08	0.00	-.17	-.17	0.00	2.67	-.17	0.00	0.00	0.00	0.00	9.25	0.00	-14.26	.66
7	12.33	-99.00	72.40	36.64	87.70	78.93	-99.00	89.09	-99.00	-99.00	-99.00	-99.00	83.78	49.33	-99.00	-99.00	-99.00	-99.00	54.06	-99.00	61.55	43.44
9	1.17	0.00	4.69	9.55	3.35	0.00	0.00	42.71	0.00	.34	0.00	.67	22.61	0.00	0.00	0.00	0.00	0.00	11.73	0.00	17.76	0.00
8	2.01	0.00	6.35	9.70	3.51	0.00	0.00	44.65	0.00	.17	.17	0.00	22.24	0.00	0.00	0.00	0.00	0.00	7.69	0.00	22.41	0.00
1	.83	0.00	1.66	.15	.16	0.00	0.00	1.94	0.00	-.17	.17	-.67	-.37	0.00	0.00	0.00	0.00	0.00	-4.03	0.00	4.65	0.00
5	58.43	-99.00	73.81	98.44	95.40	-99.00	-99.00	95.67	-99.00	49.92	-99.00	-99.00	98.35	-99.00	-99.00	-99.00	-99.00	-99.00	65.60	-99.00	79.24	-99.00
3	.24	.24	4.72	18.16	10.61	.47	0.00	35.14	.24	.47	.24	0.00	11.56	0.00	0.00	.47	0.00	0.00	4.25	0.00	40.80	1.65
0	.46	0.00	4.62	17.78	10.62	.92	0.00	33.72	0.00	.69	0.00	0.00	10.62	0.00	0.00	.46	0.00	0.00	.69	0.00	46.42	.46
7	.23	-.24	-.10	-.38	.01	.45	0.00	-1.42	-.24	.22	-.24	0.00	-.93	0.00	0.00	-.01	0.00	0.00	-3.55	0.00	5.62	-1.19
6	51.06	-99.00	97.92	97.92	99.90	51.06	-99.00	95.95	-99.00	68.08	-99.00	-99.00	91.93	-99.00	-99.00	97.92	-99.00	-99.00	16.32	-99.00	87.90	27.98

SPONSOR	TRAINER (T) / OBSERVER (O)	WHO			WHAT														
		ADULT	CHILD	OTHER	1 (NO Q)	1Q OR 1QSY	2	3	4	5	6	7	8	9	10	11	12	NV	
UO	% recorded* by T # 2165	54.31	44.83	.86	12.59	11.03	0.00	27.76	13.10	1.90	.86	6.21	5.86	16.38	.86	0.00	3.45	8.79	2
	% recorded* by O # 4016	58.68	41.32	0.00	15.35	14.33	.34	29.01	17.03	3.88	.67	5.06	1.18	10.29	.34	0.00	2.53	17.03	1
	Difference	4.37	-3.51	-.86	2.76	3.30	.34	1.25	3.93	1.98	-.19	-1.15	-4.68	-6.09	-.52	0.00	-.92	8.24	-
	% T/O Agreement	92.55	92.17	-99.00	82.02	76.98	-99.00	95.70	76.93	48.90	78.25	81.51	20.14	62.80	39.12	-99.00	73.36	51.63	60
UO	% recorded* by T # 2165	57.63	42.15	.22	12.04	12.04	.43	24.95	5.59	23.01	.43	1.94	4.73	9.25	.43	1.72	3.44	35.05	14
	% recorded* by O # 4015	76.42	23.58	0.00	10.16	6.30	.20	17.68	7.32	23.58	.41	.61	2.44	26.42	1.02	0.00	3.86	49.59	12
	Difference	18.79	-18.57	-.22	-1.88	-5.74	-.23	-7.26	1.73	.57	-.02	-1.33	-2.29	17.18	.59	-1.72	.42	14.54	-2
	% T/O Agreement	75.42	55.94	-99.00	84.39	52.37	47.26	70.88	76.42	97.60	94.51	31.50	51.55	35.00	42.32	-99.00	89.10	70.68	86
UK	% recorded* by T # 1465	79.19	20.81	0.00	8.22	8.39	0.00	17.62	5.54	21.48	7.21	4.70	1.51	13.59	1.34	0.00	10.40	41.78	8
	% recorded* by O # 4020	76.67	23.33	0.00	15.62	5.07	0.00	19.07	3.65	20.08	11.16	3.45	2.64	9.94	.20	0.00	9.13	36.71	6
	Difference	-2.52	2.52	0.00	7.40	-3.32	0.00	1.45	-1.89	-1.40	3.94	-1.25	1.13	-3.65	-1.14	0.00	-1.27	-5.06	-1
	% T/O Agreement	96.82	89.19	-99.00	52.64	60.45	-99.00	92.40	65.94	93.50	64.67	73.40	57.27	73.13	15.11	-99.00	87.74	87.88	77
UK	% recorded* by T # 1465	69.11	30.89	0.00	14.43	8.94	0.00	23.98	10.37	5.89	6.91	3.46	.61	14.63	2.85	0.00	7.93	27.85	7
	% recorded* by O # 4019	67.62	32.38	0.00	15.64	7.71	0.00	22.25	10.35	4.63	5.07	8.15	.22	14.10	2.64	.44	8.81	19.60	2
	Difference	-1.48	1.48	0.00	1.21	-1.23	0.00	-1.74	-.01	-1.27	-1.84	4.69	-.39	-.54	-.20	.44	.88	-8.24	-5
	% T/O Agreement	97.85	95.42	-99.00	92.28	86.20	-99.00	92.76	99.87	78.47	73.31	42.40	36.12	96.33	92.89	-99.00	89.97	70.40	36
UK	% recorded* by T # 1465	73.01	26.80	.19	5.44	18.45	.97	23.50	5.44	16.70	7.57	7.57	2.14	6.99	2.14	0.00	3.11	30.68	4
	% recorded* by O # 4021	72.65	27.35	0.00	6.35	17.29	1.75	22.98	4.38	20.79	8.53	4.16	2.84	5.91	.88	0.00	4.16	22.98	9
	Difference	-.36	.56	-.19	.91	-1.16	.78	-.52	-1.06	4.09	.96	-3.42	.71	-1.08	-1.26	0.00	1.05	-7.70	5
	% T/O Agreement	99.50	97.97	-99.00	65.68	93.71	55.46	97.79	80.49	80.33	88.74	54.90	75.09	84.52	40.98	-99.00	74.73	74.89	47
HS	% recorded* by T # 2165	65.06	28.51	6.43	8.03	15.66	1.61	22.09	10.34	14.86	1.61	5.62	10.44	6.83	1.61	0.00	.80	20.08	14
	% recorded* by O # 4005	56.72	40.30	2.99	13.43	6.34	4.48	36.57	[illegible]	9.70	1.49	2.99	7.46	7.84	1.12	0.00	1.49	10.45	8
	Difference	-8.34	11.78	-3.44	5.40	-9.32	2.87	14.48	-3.75	-5.16	-.11	-2.64	-2.98	1.01	-.49	0.00	.69	-9.63	-5
	% T/O Agreement	87.18	70.76	46.46	59.79	40.50	35.88	60.40	65.38	65.29	92.91	53.09	71.47	87.13	69.68	-99.00	53.82	52.03	60
HS	% recorded* by T # 2165	68.49	31.51	0.00	8.22	15.41	1.37	23.97	21.58	1.37	.34	5.48	1.71	9.25	3.42	0.00	7.88	8.22	2
	% recorded* by O # 4004	69.73	30.27	0.00	12.24	15.99	1.36	20.75	22.45	.34	0.00	9.52	.68	5.10	2.38	0.00	9.18	10.54	1
	Difference	1.23	-1.23	0.00	4.03	.58	-.01	-3.22	.87	-1.03	-.34	4.04	-1.03	-4.14	-1.04	0.00	1.31	2.33	-1
	% T/O Agreement	98.23	96.08	-99.00	67.12	96.40	99.32	86.55	96.11	24.83	-99.00	57.53	39.73	55.18	69.52	-99.00	85.77	77.95	42
HS	% recorded* by T # 2165	64.66	35.34	0.00	8.38	15.18	0.00	21.47	18.32	6.02	.79	7.07	8.38	8.64	4.97	0.00	.79	8.12	4
	% recorded* by O # 4030	69.63	30.37	0.00	9.69	12.30	2.62	17.80	18.59	10.47	1.31	8.38	5.24	9.69	2.09	.26	1.57	5.50	2
	Difference	4.97	-4.97	0.00	1.31	-2.88	2.62	-3.66	.26	4.45	.52	1.31	-3.14	1.05	-2.88	.26	.79	-2.62	-1
	% T/O Agreement	92.86	85.93	-99.00	86.49	81.03	-99.00	82.93	98.59	57.50	60.00	84.37	62.50	89.19	42.11	-99.00	50.00	67.74	64

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                                                                                ROW
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     9    10    11    12        NV     X     +     -     A     T     G     R     C     Q     F     P     L     S     I    SY     D BLANK  MULT

  5.38   .86  0.00  3.45      8.79  2.24   .69   .69 31.72  0.00  1.21  0.00   .52 11.38   .17   .17  0.00  0.00  0.00 15.17  0.00 31.03  3.79
  0.29   .34  0.00  2.53     17.03  1.35   .17  0.00 21.42  0.00   .67  0.00  0.00 14.67   .17   .17  0.00  0.00  0.00 13.56  0.00 49.07  0.00

  6.09  -.52  0.00  -.92      8.24  -.89  -.52  -.69-10.31  0.00  -.53  0.00  -.52  3.29  -.00  -.00  0.00  0.00  0.00 -1.51  0.00 18.04 -3.79
  2.80 39.12-99.00 73.33     51.63 60.19 24.45-99.00 67.51-99.00 55.89-99.00-99.00 77.56 97.81 97.81-99.00-99.00-99.00 90.03-99.00 63.24-99.00

  9.25   .43  1.72  3.44     35.05 14.62  4.73   .22 11.40   .43   .65   .43  3.01 12.26  0.00  0.00  1.08  0.00  1.72  7.31   .22 50.32  2.37
  6.42  1.02  0.00  3.86     49.59 12.60  2.64  0.00  7.11  0.00   .41  0.00  0.00  6.30  0.00  0.00   .20  0.00  1.83 25.61  0.00 54.88   .20

  7.18   .59 -1.72   .42     14.54 -2.02 -2.09  -.22 -4.28  -.43  -.24  -.43 -3.01 -5.96  0.00  0.00  -.87  0.00   .11 18.30  -.22  4.56 -2.16
  5.00 42.32-99.00 89.10     70.68 86.17 55.85-99.00 62.41-99.00 63.01-99.00-99.00 51.40-99.00-99.00 18.90-99.00 94.05 28.55-99.00 91.70  8.59

  3.59  1.34  0.00 10.40     41.78  8.39  1.51   .17 18.12  0.00   .67  0.00  0.00  8.39  0.00  0.00  0.00  0.00   .17 17.28   .34 45.64  5.54
  9.94   .20  0.00  9.13     36.71  6.49  0.00  0.00 14.81  0.00   .61   .20  0.00  5.07  0.00  0.00  0.00  0.00  0.00 11.97  3.25 57.81  5.68

  3.65 -1.14  0.00 -1.27     -5.06 -1.90 -1.51  -.17 -3.31  0.00  -.06   .20  0.00 -3.32  0.00  0.00  0.00  0.00  -.17 -5.31  2.91 12.17   .14
  3.13 15.11-99.00 87.74     87.88 77.37-99.00-99.00 81.71-99.00 90.67-99.00-99.00 60.45-99.00-99.00-99.00-99.00-99.00 69.25 10.34 78.95 97.49

  4.63  2.85  0.00  7.93     27.85  7.93  1.22  0.00 27.03   .20  2.24  0.00  0.00  8.94  0.00  0.00  0.00  0.00  0.00 16.26  0.00 37.20  3.46
  4.10  2.64   .44  8.81     19.60  2.86   .22  0.00 25.11   .44   .88  0.00  0.00  8.37  0.00  0.00  0.00  0.00  0.00 14.54  3.96 40.75   .22

  -.54  -.20   .44   .88     -8.24 -5.06 -1.00  0.00 -1.92   .24 -1.35  0.00  0.00  -.57  0.00  0.00  0.00  0.00  0.00 -1.72  3.96  3.55 -3.24
  6.33 92.89-99.00 89.97     70.40 36.12 18.06-99.00 92.89 46.14 39.41-99.00-99.00 93.59-99.00-99.00-99.00-99.00-99.00 89.61-99.00 91.28  6.37

  6.99  2.14  0.00  3.11     30.68  4.66  3.69  0.00 15.34  0.00  0.00  0.00  0.00 18.45  0.00  0.00  0.00  0.00  0.00 16.31  0.00 40.97  2.72
  5.91   .88  0.00  4.16     22.98  9.85  3.06  0.00 14.88   .44  0.00  0.00  0.00 17.51  0.00  0.00  0.00  0.00  0.00 14.44  0.00 45.73  2.41

  1.08 -1.26  0.00  1.05     -7.70  5.19  -.63  0.00  -.46   .44  0.00  0.00  0.00  -.94  0.00  0.00  0.00  0.00  0.00 -1.87  0.00  4.76  -.31
  4.52 40.98-99.00 74.73     74.89 47.33 83.04-99.00 97.00-99.00-99.00-99.00-99.00 94.90-99.00-99.00-99.00-99.00-99.00 88.54-99.00 89.59 88.54

  6.83  1.61  0.00   .80     20.08 14.86  0.00   .40  3.61  0.00   .80   .80  0.00 16.47  1.20  0.00  0.00  0.00  0.00  6.83   .40 65.86   .80
  7.84  1.12  0.00  1.49     10.45  8.96  0.00  0.00  0.00  0.00  0.00  0.00  0.00  6.34  0.00  0.00  0.00  0.00  0.00  8.56  0.00 81.34   .75

  1.01  -.49  0.00   .69     -9.63 -5.90  0.00  -.40 -3.61  0.00  -.80  -.80  0.00-10.12 -1.20  0.00  0.00  0.00  0.00  1.75  -.40 15.48  -.06
  7.13 69.68-99.00 53.82     52.03 60.27-99.00-99.00-99.00-99.00-99.00-99.00-99.00 39.52-99.00-99.00-99.00-99.00-99.00 70.55-99.00 80.97 92.91

  9.25  3.42  0.00  7.88      8.22  2.40  0.00  0.00 28.77  0.00  1.71  1.03  0.00 15.75  0.00  0.00  0.00  0.00  0.00  8.22  0.00 40.07  1.03
  5.10  2.38  0.00  9.18     10.54  1.02  0.00  0.00 30.61  0.00   .34   .34  0.00 15.99  0.00  0.00  0.00  0.00  0.00 10.20  0.00 41.84  0.00

  4.14 -1.04  0.00  1.31      2.33 -1.38  0.00  0.00  1.85  0.00 -1.37  -.69  0.00   .23  0.00  0.00  0.00  0.00  0.00  1.98  0.00  1.77 -1.03
 55.18 69.52-99.00 85.77     77.95 42.57-99.00-99.00 93.97-99.00 19.86 33.11-99.00 98.54-99.00-99.00-99.00-99.00-99.00 80.55-99.00 95.77-99.00

  8.64  4.97  0.00   .79      8.12  4.45   .79   .52 24.08  0.00  1.31   .26  0.00 15.18   .79  0.00   .52  0.00  0.00  9.95  0.00 42.93   .26
  9.69  2.09   .26  1.57      5.50  2.88   .79   .26 25.44  0.00  1.05   .26  0.00 12.30   .26  1.05   .52  0.00  0.00 10.21  0.00 40.31   .52

  1.05 -2.88   .26   .79     -2.62 -1.57  0.00  -.26  2.36  0.00  -.26  0.00  0.00 -2.88  -.52  1.05  0.00  0.00  0.00   .26  0.00 -2.62   .26
 89.19 42.11-99.00 50.00     67.74 64.71100.00 50.00 91.09-99.00 80.00100.00-99.00 81.03 33.33-99.00100.00-99.00-99.00 97.44-99.00 93.90 50.00
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SPONSOR	TRAINER (T) / OBSERVER (O)	WHO			WHAT													
		ADULT	CHILD	OTHER	1 (NO 2)	10 OR 10SY	2	3	4	5	6	7	8	9	10	11	12	NV
UF	% recorded* by T # 2043	59.79	40.21	0.00	10.93	12.35	.35	30.34	12.52	9.35	0.00	1.76	5.11	11.46	1.23	0.00	4.59	18.87
	% recorded* by O # 4028	74.59	25.41	0.00	11.22	11.55	0.00	20.46	19.47	17.49	0.00	2.48	1.49	9.41	3.47	0.00	2.97	21.12
	Difference	14.80	-14.80	0.00	.29	-.79	-.35	-9.87	6.95	8.14	0.00	.71	-3.63	-2.06	2.23	0.00	-1.62	2.25
	% T/O Agreement	80.16	63.20	-99.00	97.45	93.56	-99.00	67.45	64.31	53.44	-99.00	71.25	29.04	82.05	35.63	-99.00	64.78	89.34
UF	% recorded* by T # 2043	60.31	37.78	1.91	13.86	11.61	1.91	28.42	18.20	2.08	.69	9.53	3.81	6.93	.87	.17	1.91	16.46
	% recorded* by O # 4042	60.85	39.15	0.00	17.61	16.07	1.54	25.30	6.32	1.03	.51	7.18	1.88	5.64	1.03	2.39	13.50	5.64
	Difference	.54	1.36	-1.91	3.74	4.46	-.37	-3.12	-11.87	-1.05	-.18	-2.35	-1.93	-1.29	.16	2.22	11.60	-10.82
	% T/O Agreement	99.11	96.52	-99.00	78.75	72.26	80.70	89.01	34.76	49.32	73.97	75.32	49.32	81.37	84.49	7.24	14.12	34.26
UF	% recorded* by T # 2043	68.59	31.41	0.00	10.83	12.82	.18	25.63	12.64	3.43	.72	5.23	12.45	11.01	.90	0.00	4.15	13.54
	% recorded* by O # 4032	77.86	22.14	0.00	11.46	9.32	.39	17.67	17.09	8.35	.58	3.88	7.38	14.17	2.52	.58	6.60	11.65
	Difference	9.27	-9.27	0.00	.63	-3.50	.21	-7.96	4.45	4.92	-.14	-1.35	-5.08	3.16	1.62	.58	2.45	-1.89
	% T/O Agreement	88.09	70.48	-99.00	94.54	72.73	46.48	68.94	73.95	41.08	80.68	74.19	59.24	77.68	35.75	-99.00	62.88	86.06
ED	% recorded* by T # 2038	69.19	26.65	4.16	12.48	13.04	.38	23.06	12.29	8.88	3.59	5.67	4.16	4.73	0.00	.38	11.34	12.85
	% recorded* by O # 4023	81.44	15.55	3.02	7.89	9.28	0.00	17.17	19.03	11.37	2.32	3.71	1.86	3.25	0.00	0.00	24.13	21.11
	Difference	12.25	-11.11	-1.14	-4.59	-3.76	-.38	-5.89	6.74	2.48	-1.27	-1.96	-2.30	-1.48	0.00	-.38	12.79	8.26
	% T/O Agreement	84.96	58.32	72.53	63.23	71.15	-99.00	74.45	64.58	78.15	64.60	65.46	44.63	69.73	-99.00	-99.00	47.00	60.88
ED	% recorded* by T # 2038	70.22	29.78	0.00	10.84	13.60	.69	17.73	9.81	13.94	1.38	5.68	11.36	7.40	0.00	0.00	7.57	15.32
	% recorded* by O # 4036	74.01	25.99	0.00	10.29	11.91	1.81	23.29	8.66	24.91	.18	.54	3.43	3.25	1.08	0.00	10.65	10.47
	Difference	3.78	-3.78	0.00	-.55	-1.68	1.12	5.56	-1.15	10.97	-1.20	-5.14	-7.93	-4.15	1.08	0.00	3.08	-4.85
	% T/O Agreement	94.89	87.29	-99.00	94.89	87.62	38. 4	76.13	88.31	55.97	13.11	9.53	30.19	43.90	-99.00	-99.00	71.11	68.34
ED	% recorded* by T # 2038	58.80	41.20	0.00	9.00	8.80	1.20	13.80	18.80	15.40	1.00	3.60	14.20	11.40	0.00	0.00	2.80	18.00
	% recorded* by O # 4022	75.40	24.60	0.00	4.76	12.96	1.59	15.61	23.28	17.99	.79	4.50	1.85	7.14	0.00	.53	8.99	22.49
	Difference	16.60	-16.60	0.00	-4.24	4.16	.39	1.81	4.48	2.59	-.21	.90	-12.35	-4.26	0.00	.53	6.19	4.49
	% T/O Agreement	77.99	59.72	-99.00	62.91	67.89	75.60	88.41	80.75	85.61	79.37	80.05	13.04	62.66	-99.00	-99.00	31.13	80.05
UP	% recorded* by T # 1465	63.47	36.53	0.00	10.52	16.79	0.00	26.75	18.45	2.21	2.03	10.89	4.98	4.61	.18	0.00	2.58	13.84
	% recorded* by O # 4031	61.62	38.38	0.00	13.65	17.48	0.00	26.23	12.37	2.13	1.92	8.74	9.17	3.62	.85	.21	3.62	12.15
	Difference	-1.85	1.85	0.00	3.13	.69	0.00	-.53	-6.08	-.08	-.11	-2.14	4.19	-.99	.67	.21	1.04	-1.69
	% T/O Agreement	97.09	95.18	-99.00	77.07	96.03	-99.00	98.03	67.03	96.30	94.55	80.31	54.33	78.58	21.63	-99.00	71.26	87.83
UP	% recorded* by T # 1465	56.33	28.26	15.41	10.28	10.46	1.47	19.82	28.26	5.87	1.28	6.42	5.50	6.06	.92	0.00	3.67	11.56
	% recorded* by O # 4017	54.56	35.55	9.89	8.56	13.12	0.00	20.15	18.06	6.08	.57	4.18	11.22	5.70	.19	0.00	12.17	10.46
	Difference	-1.77	7.29	-5.53	-1.72	2.66	-1.47	.34	-10.20	.21	-.71	-2.24	5.71	-.35	-.73	0.00	8.51	-1.10
	% T/O Agreement	96.86	79.48	64.14	83.26	79.73	-99.00	98.33	63.92	96.51	44.41	65.13	49.07	94.19	20.72	-99.00	30.16	90.46

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                                                                      HOW
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  9    10    11    12       NV     X     +     -     A     T     G     R     C     O     F     P     L     S     T    SY     D BLANK  MULT

 .46  1.23  0.00  4.59    18.87 18.87   .35   .53 24.34  0.00  1.59   .35  0.00 13.23  1.76   .18  0.00  0.00  0.00  3.00  0.00 52.38   .53
 .41  3.47  0.00  2.97    21.12 14.69   .17  0.00 21.29  0.00   .17   .17  0.00 11.88   .59  0.00  0.00  0.00  0.00  4.13  0.00 60.40   .17

2.06  2.23  0.00 -1.62     2.25 -4.18  -.19  -.53 -3.05  0.00 -1.42  -.19  0.00 -1.35 -1.27  -.18  0.00  0.00  0.00  1.13  0.00  8.02  -.36
 .05 35.63-99.00 64.78    89.34 77.82 46.78-99.00 87.46-99.00 10.40 46.78-99.00 89.82 28.07-99.00-99.00-99.00-99.00 72.68-99.00 86.73 31.19
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 .93   .87   .17  1.91    16.46  3.12   .35  0.00 37.44  0.00  1.39  0.00  0.00 12.48   .35  0.00   .69  0.00  0.00 10.75  0.00 30.68  2.25
 .64  1.03  2.39 13.50     5.64  3.25   .17  0.00 15.21   .34   .17   .17  0.00 16.24  0.00  0.00  0.00  0.00  0.00 10.43  0.00 54.53  2.22

 .29   .16  2.22 11.60   -10.82   .13  -.18  0.00-22.22   .34 -1.22   .17  0.00  3.76  -.35  0.00  -.69  0.00  0.00  -.32  0.00 23.85  -.03
 .37 84.49  7.24 14.12    34.26 96.05 49.32-99.00 40.64-99.00 12.33-99.00-99.00 76.84-99.00-99.00-99.00-99.00-99.00 97.04-99.00 56.26 98.63
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1.01   .90  0.00  4.15    13.54  8.84   .91  1.26 29.42   .18   .54   .54  0.00 14.08   .90  0.00  0.00  0.00  0.00  7.40  0.00 40.79   .16
 .17  2.52   .58  6.60    11.65  9.32   .97   .78 17.67  0.00  0.00  1.17  0.00  9.90  0.00  0.00  0.00  0.00  0.00 12.04  0.00 55.53   .19

3.16  1.62   .58  2.45    -1.89   .48   .07  -.49-11.75  -.18  -.54   .62  0.00 -4.18  -.90  0.00  0.00  0.00  0.00  6.64  0.00 14.74   .01
7.68 35.75-99.00 62.88    86.06 94.90 92.96 61.47 60.06-99.00-99.00 46.46-99.00 70.34-99.00-99.00-99.00-99.00-99.00 61.47-99.00 73.46 92.96
-----------------------   -----------------------------------------------------------------------------------------------------------------------
 .73  0.00   .38 11.34    12.85 16.07   .19  0.00 17.39  0.00  2.46   .19  0.00 13.80  0.00  0.00  0.00  0.00  0.00  9.26   .76 55.58   .38
3.25  0.00  0.00 24.13    21.11 12.53  1.16  0.00 20.19  0.00   .23  0.00  0.00 10.21  0.00  0.00  3.25  0.00  0.00  5.80  0.00 53.83  3.94

1.48  0.00  -.38 12.79     8.26 -3.54   .97  0.00  2.79  0.00 -2.23  -.19  0.00 -3.59  0.00  0.00  3.25  0.00  0.00 -3.46  -.76 -1.75  3.57
8.73-99.00-99.00 47.00    60.88 77.97 16.29-99.00 85.16-99.00  9.44-99.00-99.00 73.98-99.00-99.00-99.00-99.00-99.00 62.42-99.00 96.85  3.59
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7.40  0.00  0.00  7.57    15.32  6.02   .69   .17  5.16   .17  1.55  1.55  0.00 14.11   .86  0.00  0.00  0.00  0.00  4.65  0.00 70.57   .34
3.25  1.08  0.00 10.65    10.47 14.62  0.00  0.00 10.47  0.00   .36   .18  0.00 11.91   .18   .18  0.00  0.00  0.00  1.44  0.00 75.27  0.00

 .15  1.08  0.00  3.08    -4.85  8.60  -.69  -.17  5.31  -.17 -1.19 -1.37  0.00 -2.20  -.68   .18  0.00  0.00  0.00 -3.20  0.00  4.70  -.34
3.90-99.00-99.00 71.11    68.34 41.20-99.00-99.00 49.32-99.00 23.31 11.65-99.00 84.41 20.97-99.00-99.00-99.00-99.00 31.07-99.00 93.75-99.00
-----------------------   -----------------------------------------------------------------------------------------------------------------------
1.40  0.00  0.00  2.80    18.00  5.00  1.40   .40 15.40   .20   .80  2.20  0.00 10.40   .40  0.00   .80  0.00  0.00  4.40  2.60 59.40   .60
7.14  0.00   .53  8.49    22.49  5.56  1.59  0.00 22.49   .26   .26  2.16  0.00 15.87   .26  0.00  1.32  0.00  0.00  3.70  2.91 47.62  1.06

 .26  0.00   .53  6.19     4.49   .56   .19  -.40  7.09   .06  -.54  -.08  0.00  5.47  -.14  0.00   .52  0.00  0.00  -.70   .31-10.78   .46
2.66-99.00-99.00 31.13    80.05 90.00 88.20-99.00 68.48 75.60 33.07 96.20-99.00 65.52 66.14-99.00 60.48-99.00-99.00 84.18 89.35 81.54 56.70
-----------------------   -----------------------------------------------------------------------------------------------------------------------
 .61   .18  0.00  2.58    12.84  4.06  2.58  0.00 11.07   .18  0.00   .18  0.00 16.79  0.00  0.00  0.00  0.00  0.00 13.28   .92 47.05   .55
3.62   .85   .21  3.62    12.15  5.12  1.28  0.00  7.89   .21   .21   .21   .43 17.70  0.00  0.00  1.07  0.00  0.00 13.01  0.00 54.80  1.28

-.99   .67   .21  1.04    -1.68  1.06 -1.30  0.00 -3.18   .03   .21   .03   .43   .91  0.00  0.00  1.07  0.00  0.00  -.28  -.92  7.75   .73
8.58 21.63-99.00 71.26    87.83 7[illegible]2 49.53-99.00 71.27 86.53-99.00 46.53-99.00 94.87-99.00-99.00-99.00-99.00-99.00 97.91-99.00 85.86 43.27
-----------------------   -----------------------------------------------------------------------------------------------------------------------
6.06   .92  0.00  3.67    11.56  8.07  4.04  0.00  3.30  0.00   .92   .18  0.00 10.64   .73   .18  0.00  0.00  0.00  7.52  4.59 66.77   .73
5.70   .19  0.00 12.17    10.46 11.03   .19  0.00  5.70   .19  1.33  0.00  0.00 13.50   .19   .19  1.14  0.00  0.00  5.13  3.80 68.44  0.00

-.35  -.73  0.00  8.50    -1.10  2.95 -3.85  0.00  2.40   .19   .41  -.18  0.00  2.86  -.54   .01  1.14  0.00  0.00 -2.39  -.78  3.67  -.73
4.19 20.72-99.00 30.16    90.46 73.22  4.71-99.00 57.91-99.00 69.94-99.00-99.00 78.84 25.90 96.51-99.00-99.00-99.00 68.23 82.89 94.64-99.00
-----------------------   -----------------------------------------------------------------------------------------------------------------------
```

SPONSOR	TRAINER (T) OBSERVER (O)	WHO			WHAT														
		ADULT	CHILD	OTHER	1 (NO Q)	1Q OR 1QSY	2	3	4	5	6	7	8	9	10	11	12		NV
UP	% recorded* by T # 1465	67.75	32.25	0.00	15.68	14.20	0.00	25.44	13.31	2.66	.89	8.88	3.55	9.76	1.18	0.00	4.44		25.44
	% recorded* by O # 4018	61.56	38.44	0.00	16.76	9.54	0.00	24.57	17.05	6.07	.87	5.49	4.05	13.29	.58	0.00	1.73		18.79
	Difference	-6.19	6.19	0.00	1.08	-4.66	0.00	-.88	3.74	3.41	-.02	-3.38	.50	3.53	-.61	0.00	-2.70		-6.66
	% T/O Agreement	90.86	83.89	-99.00	93.54	67.16	-99.00	96.55	78.08	43.87	97.69	61.87	87.74	73.44	48.84	-99.00	39.08		73.83
IL	% recorded* by T # 2043	56.29	33.05	10.66	10.45	10.45	0.00	20.90	5.76	19.19	.64	7.46	13.86	5.76	2.13	0.00	3.41		14.29
	% recorded* by O # 4006	58.67	26.34	14.99	4.07	4.93	.43	16.70	7.49	28.27	3.21	1.93	22.06	9.42	1.07	.21	.21		19.91
	Difference	2.38	-6.71	4.33	-6.38	-5.52	.43	-4.19	1.74	9.08	2.57	-5.54	8.20	3.66	-1.06	.21	-3.20		5.63
	% T/O Agreement	95.94	79.69	71.12	38.94	47.14	-99.00	79.93	76.81	67.89	19.91	25.82	62.84	61.10	50.21	-99.00	6.28		71.74
IL	% recorded* by T # 2043	55.76	38.60	5.64	8.80	16.70	1.81	32.05	11.06	9.48	.23	11.06	2.26	4.74	.23	0.00	1.58		9.48
	% recorded* by O # 4007	59.49	34.72	5.79	8.56	16.20	1.39	28.94	10.88	12.27	0.00	11.57	4.86	3.70	1.39	0.00	.23		17.59
	Difference	3.73	-3.88	.14	-.24	-.50	-.42	-3.12	-.18	2.79	-.23	.51	2.60	-1.04	1.16	0.00	-1.35		8.11
	% T/O Agreement	93.72	89.95	97.52	97.29	97.00	76.91	90.27	98.36	77.28	-99.00	95.57	46.44	78.13	16.25	-99.00	14.65		53.89
IL	% recorded* by T # 2043	59.67	27.44	12.89	12.71	5.52	0.00	21.18	5.52	10.31	.55	2.58	23.57	3.31	0.00	0.00	14.73		24.13
	% recorded* by O # 4008	54.26	22.14	23.59	9.98	3.99	0.00	21.60	10.89	12.34	.91	2.54	12.16	8.35	0.00	1.09	16.15		21.78
	Difference	-5.40	-5.30	10.70	-2.73	-1.53	0.00	.42	5.36	2.03	.35	-.04	-11.41	5.03	0.00	1.09	1.42		-2.35
	% T/O Agreement	90.94	80.69	54.64	78.55	72.27	-99.00	98.06	50.74	83.57	60.88	98.55	51.58	39.71	-99.00	-99.00	91.21		90.27
SE	% recorded* by T # 2038	66.15	25.92	7.93	10.25	10.44	.19	18.76	9.48	10.06	.77	3.09	15.47	18.38	.19	0.00	2.71		21.86
	% recorded* by O # 4040	69.37	22.70	7.93	9.55	12.43	.18	19.46	9.73	10.27	.90	2.16	15.50	12.61	1.26	0.00	5.95		19.82
	Difference	3.22	-3.22	-.00	-.70	1.99	-.01	.50	.25	.21	.13	-.93	.02	-5.76	1.07	0.00	3.24		-2.04
	% T/O Agreement	95.36	87.59	99.97	93.15	84.01	93.15	97.41	97.41	97.93	85.88	69.86	99.86	68.64	15.34	-99.00	45.54		90.68
SE	% recorded* by T # 2038	55.15	21.24	23.61	10.52	7.51	1.72	12.66	18.88	11.37	2.15	3.65	13.95	11.16	.21	0.00	6.22		9.87
	% recorded* by O # 4039	58.79	23.43	17.78	10.25	7.11	0.00	11.30	21.34	17.78	1.46	.84	13.39	9.00	.21	.21	7.11		7.74
	Difference	3.64	2.19	-5.82	-.26	-.40	-1.72	-1.36	2.45	6.41	-.68	-2.81	-.56	-2.16	-.01	.21	.89		-2.13
	% T/O Agreement	93.81	90.67	75.33	97.49	94.70	-99.00	89.23	88.50	63.96	68.24	22.94	95.99	80.62	97.49	-99.00	87.49		78.42
SE	% recorded* by T # 2038	71.68	17.70	10.62	7.43	10.62	.18	15.93	17.35	13.98	.71	6.55	.88	4.96	0.00	0.00	21.42		15.46
	% recorded* by O # 4038	71.08	18.52	10.41	6.35	7.58	1.59	18.17	15.17	10.23	.71	6.17	3.00	6.35	.88	0.00	23.81		10.58
	Difference	-.61	.82	-.21	-1.08	-3.04	1.41	2.24	-2.18	-3.75	-.00	-.38	2.11	1.39	.88	0.00	2.39		-4.82
	% T/O Agreement	99.16	95.58	97.99	85.41	71.41	11.15	87.69	87.45	73.16	99.65	94.26	29.52	78.05	-99.00	-99.00	89.95		58.72

END OF FILE

HOW

9	10	11	12	NV	%	+	-	A	T	G	R	C	Q	F	P	L	S	I	SY	O	BLANK	MULT
9.76	1.18	0.00	4.44	25.44	11.24	0.00	0.00	23.67	0.00	.30	.30	0.00	15.38	0.00	0.00	0.00	0.00	0.00	15.09	0.00	42.90	.30
3.29	.58	0.00	1.73	18.79	9.25	0.00	0.00	29.77	0.00	.29	0.00	0.00	10.12	0.00	0.00	0.00	0.00	0.00	14.45	0.00	41.04	0.00
3.53	-.61	0.00	-2.70	-6.66	-1.99	0.00	0.00	6.10	0.00	-.01	-.30	0.00	-5.27	0.00	0.00	0.00	0.00	0.00	-.64	0.00	-1.86	-.30
3.44	48.84	-99.00	39.08	73.83	82.26	-99.00	-99.00	79.51	-99.00	97.69	-99.00	-99.00	65.75	-99.00	-99.00	-99.00	-99.00	-99.00	95.77	-99.00	95.67	-99.00
5.76	2.13	0.00	3.41	14.29	9.81	8.53	1.71	7.68	.21	1.49	.21	0.00	11.09	.43	0.00	0.00	0.00	0.00	2.56	.21	59.91	.64
9.42	1.07	.21	.21	19.91	10.71	7.49	0.00	13.70	3.00	3.64	.64	0.00	5.35	1.07	0.00	2.57	0.00	0.00	4.50	0.00	52.46	0.00
3.66	-1.06	.21	-3.20	5.63	.90	-1.03	-1.71	6.03	2.78	2.15	.43	0.00	-5.73	.64	0.00	2.57	0.00	0.00	1.94	-.21	-7.45	-.64
1.10	50.21	-99.00	6.28	71.74	91.61	87.87	-99.00	56.01	7.11	41.00	33.19	-99.00	48.28	39.83	-99.00	-99.00	-99.00	-99.00	56.90	-99.00	87.56	-99.00
4.74	.23	0.00	1.58	9.48	11.51	0.00	1.13	25.73	0.00	1.35	.68	.90	17.38	.23	0.00	.23	0.00	0.00	9.35	0.00	42.66	.23
3.70	1.39	0.00	.23	17.59	9.49	.23	0.00	18.06	0.00	.23	.93	0.00	16.44	0.00	0.00	.46	0.00	0.00	11.11	0.00	50.46	.23
1.04	1.16	0.00	-1.35	8.11	-2.02	.23	-1.13	-7.68	0.00	-1.12	.25	-.90	-.95	-.23	0.00	.24	0.00	0.00	2.76	0.00	7.80	.01
8.13	16.25	-99.00	14.65	53.89	82.44	-99.00	-99.00	70.16	-99.00	17.09	73.14	-99.00	94.56	-99.00	-99.00	44.76	-99.00	-99.00	75.17	-99.00	84.54	97.52
3.31	0.00	0.00	14.73	24.13	9.58	5.52	0.00	3.31	.55	1.84	.18	0.00	5.52	.18	0.00	.18	0.00	0.00	.74	.18	77.35	.18
8.35	0.00	1.09	16.15	21.78	18.87	8.53	0.00	6.72	.36	.18	2.18	.54	4.36	0.00	0.00	0.00	0.00	0.00	4.72	0.00	67.88	1.27
5.03	0.00	1.09	1.42	-2.35	9.30	3.01	0.00	3.40	-.19	-1.66	1.99	.54	-1.17	-.18	0.00	-.18	0.00	0.00	3.98	-.18	-9.47	1.09
9.71	-99.00	-99.00	91.21	90.27	50.74	64.77	-99.00	49.37	65.70	9.86	8.46	-99.00	78.84	-99.00	-99.00	-99.00	-99.00	-99.00	15.61	-99.00	87.75	14.50
8.38	.19	0.00	2.71	21.86	10.83	5.61	.19	6.58	.77	4.06	2.32	0.00	13.35	1.35	.97	0.00	0.00	0.00	1.93	.77	60.15	.97
2.61	1.26	0.00	5.95	19.82	12.97	5.41	0.00	6.67	.36	4.32	1.26	.36	13.51	.18	0.00	.18	0.00	0.00	4.14	1.80	58.02	2.34
5.76	1.07	0.00	3.24	-2.04	2.14	-.20	-.19	.09	-.41	.26	-1.06	.36	.17	-1.17	-.97	.18	0.00	0.00	2.21	1.03	-2.14	1.38
4.64	15.34	-99.00	45.54	90.68	83.49	96.37	-99.00	98.65	46.58	93.93	54.34	-99.00	98.76	13.31	-99.00	-99.00	-99.00	-99.00	46.67	42.94	96.45	41.29
1.16	.21	0.00	6.22	9.87	1.50	.86	.64	3.65	.43	1.07	2.58	0.00	7.94	1.07	0.00	0.00	0.00	0.00	4.94	.43	71.46	1.72
9.00	.21	.21	7.11	7.74	6.49	1.46	0.00	.63	0.00	6.90	1.05	.21	7.32	.21	0.00	0.00	0.00	0.00	1.88	4.81	68.83	1.26
2.16	-.01	.21	.89	-2.13	4.98	.61	-.64	-3.02	-.43	5.83	-1.53	.21	-.62	-.86	0.00	0.00	0.00	0.00	-3.05	4.38	-2.63	-.46
0.62	97.49	-99.00	87.49	78.42	23.16	58.61	-99.00	17.20	-99.00	15.54	40.62	-99.00	92.22	19.50	-99.00	-99.00	-99.00	-99.00	38.15	8.92	96.32	73.12
4.96	0.00	0.00	21.42	15.40	5.84	.53	0.00	11.33	.18	.71	.88	0.00	11.68	.18	0.00	0.00	0.00	0.00	6.73	0.00	67.43	.35
6.35	.88	0.00	23.81	10.58	4.76	.35	0.00	12.70	0.00	.18	0.00	.18	7.58	0.00	0.00	0.00	0.00	0.00	8.82	0.00	66.84	1.23
1.39	.88	0.00	2.39	-4.82	-1.08	-.18	0.00	1.37	-.18	-.53	-.86	.18	-4.10	-.18	0.00	0.00	0.00	0.00	2.09	0.00	-.59	.88
78.05	-99.00	-99.00	89.95	68.72	81.53	66.43	-99.00	83.20	-99.00	24.91	-99.00	-99.00	64.92	-99.00	-99.00	-99.00	-99.00	-99.00	76.27	-99.00	99.12	28.67

Appendix O

ASSESSMENT OF CCL VARIABILITY BETWEEN ADULT-FOCUSED AND CHILD-FOCUSED OBSERVATIONS

Appendix O

ASSESSMENT OF CCL VARIABILITY BETWEEN ADULT-FOCUSED AND CHILD-FOCUSED OBSERVATIONS

The procedure of pooling data over classrooms will be conservative to the extent that differences in CCL distributions for a given classroom may cancel with others when the data are pooled. In order to carry out these procedures, the values of each CCL variable had to be partitioned. The partition for each variable is indicated in Table O-1. They were determined on a judgmental basis with the constraint that at least 5% of the total number of COPs fell in each partition. Table O-2 shows the number of COPs that entered into the analysis by sponsor, grade, and focus.

The χ^2 technique for comparing two distributions is well known (see, for example, C. R. Rao, 1965). The CATANOVA technique was introduced by Light and Margolin (1971). Briefly, it is based on an analog of the analysis of variance and yields a statistic, R^2, which may be interpreted as the proportion of variation "explained" by a particular effect. See Appendix R for more details about the CATANOVA procedure. In the present case, as R^2 increases, the variability between foci increases.

Table O-3 gives for each sponsor-grade level combination the number of CCL variables where the χ^2 and CATANOVA procedures indicated a major difference at a level of significance of 0.01 or less. Also included is a list of those variables where $R^2 \geq 0.08$. For most cases, this latter criterion for a major difference was more stringent than the former one based on the χ^2 distribution. It is well known that the χ^2 tests are very sensitive when the sample size is large. After inspection of some of CCL variables where the χ^2 and CATANOVA procedures indicated a major difference at a level of significance of 0.01 or less. Also included is differences.

Table O-4 shows the changes observed between foci on selected CCL variables by sponsor and grade.

Table O-1

SPECIFICATION OF PARTITIONS FOR CCL VARIABLES

CCL Variable	Partition
1	0;1
2	0;1
3	0;1
4	0;1
5	0;1
6	0;1
7	0;1
8	0;1
9	0;1
10	0;1
11	0;1
12	0;1
13	0;1
14	0;1;2;3;4+[*]
15	0;1+
16	0;1+
17	0;1+
18	0;1+
19	0;1+
20	0;1+
21	0;1+
22	0;1+
23	0;1+
24	0;1+
25	0;1+
26	0;1+
27	0;1;2+
28	0;(1/12)+
29	0;1
30	0;1/12-6/12; 7/12-12/12
31	0;1/2;1+
32	0;(1/2)+
33	0;1+
34	0;1-4;5-9; 10-14;15+
35	0;1+
36	0;1+
37	0;1+
38	0;1+
39	0;1+
40	0;1+
41	0;1+
42	0;1+
43	0;1+
44	0;1+
45	0;1;2+
46	0;1+
47	0;1+
48	0;1;2+
49	0;1;2;3;4+
50	0;1;2;3+
51	0;1;2;3;4+
52	0;1+
53	1;2;3;4+

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[*] A "+" beside a digit indicates that all COPs with that many occurrences or more go in that category.

Table O-2

NUMBER OF COPs
BY SPONSOR, GRADE, AND FOCUS

		Focus					Focus		
Sponsor	Grade	Adult	Child	Total	Sponsor	Grade	Adult	Child	Total
FW					ED				
	K	129	128	257		K	113	123	236
	1/ek	149	129	278		1/ek	140	128	268
	2/ek	127	132	259		2/ek	144	128	272
UA					UP				
	1/ef	159	128	287		K	117	130	247
	2/ef	160	127	287		1/ek	146	128	274
	3/ef	158	128	286		2/ek	152	128	280
BC					IL				
	1/ef	141	124	265		K	152	128	280
	2/ef	157	128	285		1/ek	178	128	306
	3/ef	143	127	270		2/ek	160	128	288
UG					SE				
	1/ef	158	127	285		K	135	124	259
	2/ef	160	128	288		1/ek	136	122	258
	3/ef	141	128	269		2/ek	157	125	282
UO					Non-Follow Through				
	1/ef	159	128	287		K	502	462	964
	2/ef	160	128	288		1/ef	398	314	712
	3/ef	160	128	288		1/ek	425	365	790
UK						2/ek;2/ef	819	668	1487
	K	145	126	271		3/ef	399	306	705
	1/ek	120	97	217		M	256	213	469
	2/ek	116	96	212					
HS									
	K	141	127	268					
	1/ek	153	128	281					
	2/ef	160	128	288					
	3/ef	155	128	283					
UF									
	1/ef	120	96	216					
	2/ef	160	128	288					
	3/ef	160	127	287					
	M	37	31	68					

Table O-3

CCL VARIABLES WHERE THERE IS A MAJOR DIFFERENCE IN DISTRIBUTION BETWEEN ADULT FOCUS AND CHILD FOCUS BY SPONSOR AND GRADE LEVEL*

Sponsor	Grade Level	No. of Variables where $p \leq 0.01$ for X^2 and CATANOVA	CCL Variables where $R^2 \geq 0.08$
FW	K	4	--
	1/ek	3	--
	2/ek	3	--
UA	1/ek	6	25, 47, 48
	2/ef	6	47, 53
	3/ef	2	53
BC	1/ef	7	18, 42, 47
	2/ef	14	--
	3/ef	6	--
UG	1/ef	6	--
	2/ef	5	25, 28
	3/ef	4	--
UO	1/ef	5	29
	2/ef	10	--
	3/ef	4	--
UK	K	5	--
	1/ek	7	29
	2/ek	3	--
HS	K	5	--
	1/ek	3	--
	2/ef	4	--
	3/ef	5	6
UF	1/ef	17	2, 9, 21, 28, 45, 53
	2/ef	13	9, 28, 53
	e/ef	4	--
	M/ef	8	8, 9, 23, 25, 28, 31 34, 38, 42, 50, 53
EDC	K	8	--
	1/ek	7	4, 33
	2/ek	13	7, 29
UP	K	2	--
	1/ek	7	--
	2/ek	9	38, 42, 47, 52
IL	K	0	--
	1/ek	7	30
	2/ek	4	--
SE	K	5	--
	1/ek	2	--
	2/ek	4	--
NFT	K	5	--
	1/ef	16	--
	1/ek	11	--
	2/ek,2/ef	3	--
	3/ek	11	--
	M	9	52

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[*] See Table O-2 for the number of COPs by sponsor, grade, and focus.

Table O-4

CHANGES OBSERVED BETWEEN FOCI ON SELECTED CCL VARIABLES BY SPONSOR AND GRADE*

FAR WEST LAB

		K				1/ek				2/ek			
CCL Variable	Focus	$\bar{X}$	SD	R^2	p	$\bar{X}$	SD	R^2	p	$\bar{X}$	SD	R^2	p
Arithmetic, numbers, math (04)	AF	.34	.48	.01	.001	.24	.43	.02	.05	.29	.46	.02	N.S.
	CF	.25	.44			.36	.48			.41	.49		
Reading, alphabet, language development (05)	AF	.59	.49	.01	N.S.	.49	.50	.00	N.S.	.47	.50	.02	.05
	CF	.48	.50			.48	.50			.61	.49		
Teacher with small group in any activity (41)	AF	.09	.29	.01	N.S.	.24	.43	.02	.05	.30	.48	.00	N.S.
	CF	.15	.36			.40	.58			.30	.47		

U. ARIZONA

		1/ef				2/ef				3/ef			
CCL Variable	Focus	$\bar{X}$	SD	R^2	p	$\bar{X}$	SD	R^2	X^2_p	$\bar{X}$	SD	R^2	p
Arithmetic, numbers, math (04)	AF	.47	.50	.02	.05	.33	.47	.02	.05	.43	.50	.00	N.S.
	CF	.34	.47			.20	.40			.41	.49		
Reading, alphabet, language development (05)	AF	.57	.50	.01		.48	.50	.00	N.S.	.52	.50	.00	N.S.
	CF	.50	.50			.44	.50			.55	.50		
Teacher with small group in any activity (41)	AF	.50	.50	.02	.05	.26	.45	.02	.05	.39	.56	.00	N.S.
	CF	.36	.50			.17	.49			.32	.47		

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*See Table O-2 for number for COPs by sponsor, grade, and focus.

Table O-4 (Continued)

BANK STREET

CCL Variable	Focus	1/ef $\bar{X}$	1/ef SD	1/ef R^2	1/ef p	2/ef $\bar{X}$	2/ef SD	2/ef R^2	2/ef p	3/ef $\bar{X}$	3/ef SD	3/ef R^2	3/ef p
Arithmetic, numbers, math (04)	AF	.36	.48	.00	N.S.	.56	.50	.00	N.S.	.27	.45	.05	.001
	CF	.32	.47			.63	.49			.48	.50		
Reading, alphabet, language development (05)	AF	.76	.43	.02	.05	.64	.48	.00	N.S.	.54	.50	.00	N.S.
	CF	.63	.49			.69	.47			.54	.50		
Teacher with small group in any activity (41)	AF	.31	.47	.00	N.S.	.53	.50	.02	.05	.48	.50	.00	N.S.
	CF	.32	.48			.66	.49			.45	.50		

U. GEORGIA

CCL Variable	Focus	1/ef $\bar{X}$	1/ef SD	1/ef R^2	1/ef p	2/ef $\bar{X}$	2/ef SD	2/ef R^2	2/ef p	3/ef $\bar{X}$	3/ef SD	3/ef R^2	3/ef p
Arithmetic, numbers, math (04)	AF	.48	.50	.00	N.S.	.29	.46	.01	N.S.	.32	.47	.00	N.S.
	CF	.53	.50			.36	.48			.31	.47		
Reading, alphabet, language development (05)	AF	.55	.50	.04	.01	.61	.49	.00	N.S.	.51	.50	.00	N.S.
	CF	.73	.45			.64	.48			.57	.50		
Teacher with small group in any activity (41)	AF	.44	.50	.00	N.S.	.41	.57	.02	.05	.61	.50	.00	N.S.
	CF	.47	.50			.49	.50			.57	.50		

Table O-4 (Continued)

U. OREGON

CCL Variable	Focus	1/ef				2/ef				3/ef			
		$\bar{X}$	SD	R^2	p	$\bar{X}$	SD	R^2	p	$\bar{X}$	SD	R^2	p
Arithmetic, numbers, mat (04)	AF	.81	.87	.01	N.S.	.69	.46	.03	.01	.68	.47	.00	N.S.
	CF	.39	.34			.85	.36			.73	.45		
Reading, alphabet, language development (05)	AF	.91	.29	.00	N.S.	.85	.36	.05	.001	.92	.27	.02	.05
	CF	.91	.29			.98	.15			.98	.15		
Teacher with small group in any activity (41)	AF	.77	.74	.00	N.S.	.69	.48	.00		.29	.17	.02	.05
	CF	.42	.46			.64	.50			.46	.38		

U. KANSAS

CCL Variable	Focus	K				1/ek				2/ek			
		$\bar{X}$	SD	R^2	p	$\bar{X}$	SD	R^2	p	$\bar{X}$	SD	R^2	p
Arithmetic, numbers, math (04)	AF	.66	.48	.01	N.S.	.63	.48	.06	.001	.72	.45	.01	N.S.
	CF	.73	.45			.85	.36			.79	.41		
Reading, alphabet, language development (05)	AF	.72	.45	.02	N.S.	.78	.42	.00	N.S.	.78	.41	.01	N.S.
	CF	.83	.38			.83	.38			.87	.34		
Teacher with small group in any activity (41)	AF	.70	.46	.00	N.S.	.68	.72	.00	N.S.	.55	.52	.01	N.S.
	CF	.75	.44			.47	.45			.64	.48		

Table 0-4 (Continued)

HIGH/SCOPE

		K				1/ek				2/ef				3/ef			
CCL Variable	Focus	$\bar{X}$	SD	R^2	p	$\bar{X}$	SD	R^2	p	$\bar{X}$	SD	R^2	p	$\bar{X}$	SD	R^2	p
Arithmetic, numbers, math (04)	AF	.16	.37			.32	.47			.43	.50			.37	.48		
				.01	N.S.			.00	N.S.			.00	N.S.			.01	N.S.
	CF	.23	.42			.27	.48			.50	.50			.45	.50		
Reading, alphabet, language development (05)	AF	.23	.43			.43	.50			.47	.50			.62	.49		
				.06	.001			.01	N.S.			.01	N.S.			.01	N.S.
	CF	.46	.50			.31	.47			.55	.50			.53	.50		
Teacher with small group in any activity (41)	AF	.34	.48			.36	.48			.82	.88			.65	.70		
				.00	N.S.			.00	N.S.			.00	N.S.			.00	N.S.
	CF	.37	.49			.31	.47			.79	.83			.74	.82		

U. FLORIDA

		1/ef				2/ef				3/ef				Mixed			
CCL Variable	Focus	$\bar{X}$	SD	R^2	p	$\bar{X}$	SD	R^2	p	$\bar{X}$	SD	R^2	p	$\bar{X}$	SD	R^2	p
Arithmetic, numbers, math (04)	AF	.28	.44			.38	.49			.22	.42			.30	.46		
				.07	.001			.01	N.S.			.00	N.S.			.00	N.S.
	CF	.53	.50			.28	.45			.23	.42			.32	.48		
Reading, alphabet, language development (05)	AF	.63	.49			.60	.49			.63	.49			.30	.46		
				.02	.05			.00	N.S.			.00	N.S.			.03	N.S.
	CF	.76	.43			.66	.47			.61	.49			.45	.51		
Teacher with small group in any activity (41)	AF	.52	.52			.59	.49			.34	.50			.41	.50		
				.00	N.S.			.00	N.S.			.00	N.S.			.04	N.S.
	CF	.56	.50			.60	.63			.37	.49			.61	.50		

Table 0-4 (Continued)

EDC

CCL Variable	Focus	K X̄	K SD	K R^2	K p	1/ek X̄	1/ek SD	1/ek R^2	1/ek p	2/ek X̄	2/ek SD	2/ek R^2	2/ek p
Arithmetic, numbers, math (04)	AF	.35	.48			.24	.57			.52	.50		
				.00	N.S.			.11	.001			.00	N.S.
	CF	.39	.49			.43	.50			.56	.50		
Reading, alphabet, language	AF	.56	.50			.56	.50			.64	.48		
development (05)				.02	N.S.			.01	N.S.			.04	.01
	CF	.43	.50			.66	.47			.82	.39		
Teacher with small group	AF	.34	.48			.17	.38			.27	.53		
in any activity (41)				.00	N.S.			.01	N.S.			.02	.05
	CF	.37	.48			.27	.44			.38	.49		

U. PITTSBURGH

CCL Variable	Focus	K X̄	K SD	K R^2	K p	1/ek X̄	1/ek SD	1/ek R^2	1/ek p	2/ek X̄	2/ek SD	2/ek R^2	2/ek p
Arithmetic, numbers, math (04)	AF	.46	.50			.38	.49			.31	.46		
				.00	N.S.			.00				.00	N.S.
	CF	.49	.50			.38	.49			.33	.47		
Reading, alphabet, language	AF	.15	.36			.51	.50			.40	.49		
development (05)				.00	N.S.			.00				.01	N.S.
	CF	.12	.32			.45	.50			.51	.50		
Teacher with small group	AF	.03	.16			.23	.59			.18	.39		
in any activity (41)				.01	N.S.			.01				.00	N.S.
	CF	.10	.43			.12	.32			.15	.36		

Table 0-4 (Continued)

ILM

CCl Variable	Focus	K $\bar{X}$	K SD	K R^2	K p	1/ek $\bar{X}$	1/ek SD	1/ek R^2	1/ek p	2/ek $\bar{X}$	2/ek SD	2/ek R^2	2/ek p
Arithmetic, numbers, math (04)	AF	.26	.44			.16	.37			.21	.22		
				.02	.05			.04	.001			.00	N.S.
	CF	.14	.35			.34	.47			.41	.42		
Reading, alphabet, language development (05)	AF	.40	.49			.64	.48			.69	.47		
				.00	N.S.			.00	N.S.			.00	N.S.
	CF	.44	.50			.59	.49			.65	.48		
Teacher with small group in any activity (41)	AF	.30	.49			.44	.50			.59	.63		
				.02	.05			.01	N.S.			.01	N.S.
	CF	.45	.53			.34	.48			.52	.64		

SOUTHWEST LAB

CCL Variable	Focus	K $\bar{X}$	K SD	K R^2	K p	1/ek $\bar{X}$	1/ek SD	1/ek R^2	1/ek p	2/ek $\bar{X}$	2/ek SD	2/ek R^2	2/ek p
Arithmetic, numbers, math (04)	AF	.24	.43			.18	.39			.15	.36		
				.00	N.S.			.01	N.S.			.00	N.S.
	CF	.27	.44			.12	.33			.14	.35		
Reading, alphabet, language development (05)	AF	.50	.50			.44	.50			.54	.50		
				.01	N.S.			.02	.05			.04	.001
	CF	.40	.49			.57	.50			.33	.47		
Teacher with small group in any activity (41)	AF	.44	.56			.10	.30			.01	.11		
				.00	N.S.			.00	N.S.			.01	N.S.
	CF	.48	.60			.08	.28			.06	.23		

Table O-4 (Concluded)

NON-FOLLOW THROUGH

CCL Variable	Focus	K				1 ef				1 ek			
		$\bar{X}$	SD	R^2	p	$\bar{X}$	SD	R^2	p	$\bar{X}$	SD	R^2	p
Arithmetic, numbers, math (04)	AF	.14	.35	.00	N.S.	.22	.42	.00	N.S.	.19	.39	.02	.001
	CF	.15	.36			.22	.42			.31	.46		
Reading, alphabet, language development (05)	AF	.25	.43	.00	N.S.	.51	.50	.03	.001	.47	.50	.01	.01
	CF	.26	.44			.70	.46			.58	.50		
Teacher with small group in any activity (41)	AF	.12	.37	.00	N.S.	.22	.42	.00	N.S.	.12	.40	.01	.05
	CF	.09	.29			.23	.44			.16	.37		

NON-FOLLOW THROUGH

CCL Variable	Focus	2 (ek, ef)				3 ef				Mixed			
		$\bar{X}$	SD	R^2	p	$\bar{X}$	SD	R^2	p	$\bar{X}$	SD	R^2	p
Arithmetic, numbers, math (04)	AF	.21	.41	.00	N.S.	.17	.38	.01	.01	.22	.42	.00	N.S.
	CF	.25	.44			.27	.45			.25	.44		
Reading, alphabet, language development (05)	AF	.55	.50	.00	.05	.56	.50	.00	N.S.	.51	.50	.00	N.S.
	CF	.61	.49			.58	.50			.46	.50		
Teacher with small group in any activity (41)	AF	.19	.41	.00	N.S.	.12	.33	.00	N.S.	.22	.52	.00	N.S.
	CF	.18	.38			.17	.37			.27	.50		

Appendix P

REGRESSION STATISTICS FOR TWO MODELS BY TEST

Appendix P

REGRESSION STATISTICS FOR THREE MODELS BY TEST

	Covariables		ANOVA Model						C.O. Model						Factor Model					
	N	$R^2\ Y\|B_1$ †	S.E.	$R^2\ Y\|B_1 B_2$ ‡	F	df		p<	S.E.	$R^2\ Y\|B_1 B_2$ ‡	F	df		p<	S.E.	$R^2\ Y\|B_1 B$ †	F	df		p<
K																				
MAT Q	720	.11	4.77	.51	27.85	7	705	.001	4.61	.58	10.24	26	686	.001	4.90	.51	16.72	9	703	.001
WRAT Q	720	.51	2.91	.59	13.17	7	705	.001	2.86	.63	6.28	26	686	.001	3.05	.56	3.95	9	703	.001
MAT R	720	.12	8.05	.52	19.11	7	705	.001	7.70	.57	8.84	26	686	.001	8.33	.48	8.80	9	703	.001
WRAT R	720	.52	3.96	.56	11.04	7	705	.001	3.86	.60	5.34	26	686	.001	4.07	.54	4.61	9	703	NS
Peabody	720	.42	8.28	.48	13.04	7	705	.001	7.96	.53	6.75	26	686	.001	8.71	.43	1.96	9	703	NS
Gumpgookies	720	.10	8.48	.10	1.39	7	705	NS	8.28	.17	2.15	26	686	.001	8.50	.10	.75	9	703	NS
Locus	720	.12	2.98	.15	3.61	7	705	.001	3.01	.16	1.16	26	686	NS	3.01	.13	1.16	9	703	NS
1/cf																				
MAT Q	651	.45	9.07	.51	16.18	5	638	.001	8.32	.61	9.10	26	617	.001	8.63	.56	16.68	9	642	.001
WRAT Q	651	.41	2.91	.44	5.16	5	638	.001	2.72	.53	5.51	26	617	.001	2.84	.46	6.18	9	642	.001
MAT R	651	.45	17.14	.55	27.92	5	638	.001	14.38	.70	18.76	26	617	.001	16.16	.60	25.35	9	642	.001
WRAT R	651	.50	4.36	.54	11.68	5	638	.001	3.81	.67	11.30	26	617	.001	4.21	.57	11.46	9	642	.001
Peabody	651	.37	7.27	.39	3.30	5	638	.010	6.98	.46	3.60	26	617	.001	7.21	.39	2.57	9	642	.010
Gumpgookies	651	.05	7.55	.07	3.44	5	638	.010	7.31	.16	3.16	26	617	.001	7.10	.10	4.45	9	642	.001
Locus	651	.15	2.75	.16	.37	5	638	NS	2.70	.22	1.86	26	617	.010	2.73	.16	.75	9	642	NS
1/ck																				
MAT Q	484	.59	9.09	.68	20.11	7	469	.001	8.43	.74	9.96	26	450	.001	9.83	.63	6.10	9	467	.001
MAT R	484	.58	14.61	.68	22.13	7	469	.001	15.12	.74	11.00	26	450	.001	17.62	.64	8.34	9	467	.001
Gumpgookies	484	.05	6.04	.07	1.21	7	469	NS	6.05	.11	1.04	26	450	NS	6.05	.07	.82	9	467	NS
Locus	484	.24	2.51	.25	.73	7	469	NS	2.47	.30	1.55	26	450	.050	2.52	.25	.70	9	467	NS
2/ck																				
MAT Q	244	.57	14.03	.60	1.20	5	231	.010							13.61	.63	4.55	9	227	.001
MAT R	244	.49	20.86	.53	4.17	5	231	.010							19.16	.61	7.93	9	227	.001
Raven	244	.39	4.00	.52	12.55	5	231	.001							4.08	.51	6.07	9	227	.001
Coopersmith	244	.10	4.53	.12	.95	5	231	NS							4.46	.16	1.77	9	227	NS
IAR	244	.08	2.74	.11	1.50	5	231	NS							2.70	.15	2.02	9	227	.050
2/cf																				
MAT Q	488	.49	13.77	.54	9.12	6	474	.001	13.59	.57	3.40	26	454	.001	14.04	.52	4.14	9	471	.001
MAT R	488	.49	17.51	.55	10.26	6	474	.001	16.17	.63	6.69	26	454	.001	17.94	.53	4.35	9	471	.001
Raven	488	.29	1.39	.31	2.10	6	474	NS	4.23	.38	2.68	26	454	.001	4.33	.33	3.15	9	471	.010
Coopersmith	488	.16	4.34	.17	1.22	6	474	NS	4.20	.26	2.37	26	454	.010	4.33	.18	1.58	9	471	NS
IAR	488	.07	2.90	.10	3.36	6	474	.010	2.80	.20	2.91	26	454	.001	2.90	.11	2.71	9	471	.010
3/cf																				
MAT Q	323	.37	14.89	.47	9.58	6	309	.001	13.69	.58	5.56	26	289	.001	15.14	.45	5.35	9	306	.001
MAT R	323	.41	17.49	.48	7.52	6	309	.001	16.61	.56	3.97	26	289	.001	17.50	.49	5.61	9	306	.001
Raven	323	.27	4.41	.29	1.86	6	309	NS.	4.41	.35	1.33	26	289	NS	4.47	.29	1.06	9	306	NS
Coopersmith	323	.11	4.16	.16	2.81	6	309	.050	4.04	.25	2.18	26	289	.010	4.26	.13	.61	9	306	NS
IAR	323	.08	2.95	.14	3.75	6	309	.010	2.81	.25	2.58	26	289	.001	2.96	.11	2.45	9	306	.050

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[*] N = Number of children.

[†] $R^2_{Y|B_1}$ is the coefficient of determination for the regression of a dependent variable Y on the covariable B_1.

[‡] $R^2_{Y|B_1 B_2}$ is the coefficient of determination for the regression of a dependent variable Y on the covariable B_1 and the independent variable B_2.

Appendix Q

INVESTIGATION OF THE EQUALITY OF SLOPES AND RESIDUALS FOR SPONSORS WITHIN GRADE STREAM

Appendix Q

INVESTIGATION OF THE EQUALITY OF SLOPES AND RESIDUALS FOR SPONSORS WITHIN GRADE STREAM

In order to minimize the number of regression equations to be examined in Chapter VIII, the assumption has been made that the relation of dependent to independent variables is the same for each site within a grade stream, except for the possibility in the ANOVA model that each sponsor might have a different intercept. That is, it has been assumed that the regression coefficients (slopes) are constant across sponsors except possibly for the intercept. In this section, this assumption is examined for the ANOVA model.

The procedure selected to test the question is a modification of the test proposed by Anderson (1958) for testing the equality of two multivariate normal distributions. The heuristic used here modifies the procedure by replacing the maximum likelihood test of equality of means, given equal covariance matrices, with the corresponding test for the matrix of regression coefficients, and changes the degrees of freedom in the asymptotic distribution accordingly. Table Q-1 shows the formula for the test statistic.

This test was made using the regression model parameterized as shown in Table Q-2, for K and ef grade streams, with the dependent variables described in Chapter VIII. The sites for these grade streams were those shown in the same table, except for the U. Pittsburgh site which was deleted because its equation was singular under the present parameterization. Data from children with both baseline and outcome scores were used to obtain the matrix of residuals for the test. All children in the sample having baseline scores also had the other data, except for data derived from the parent interview questionnaire. The question of how to handle cases lacking these data and the solution chosen are discussed below.

Table Q-3 shows the determinants and sample sizes necessary to compute the criterion. For both grade streams, order of magnitude calculations show that the test does not reject at the $\alpha = 0.05$ level the hypothesis that the distributions are identical except for the coefficients

Table Q-1

STATISTICS FOR TESTING WHETHER SITES ARE EQUAL EXCEPT FOR INTERCEPT

Under the null hypothesis,

$-2\rho \log w$ is asymptotically a central χ^2 random variable with f degrees of freedom, where

$$f = 1/2\ q_1 p(p+3)$$

p is the number of independent variables, and

$q_1 = (q-1)(G-1)$.

G is the number of sites and q is the number of dependent variables,

$$1 - \rho = \left(\sum_{g=1}^{a} - \frac{1}{n_g}\right) \frac{2p^2 + 3p-1}{6q_1(p+3)} + \frac{1}{n}\ \frac{p-q_1+1}{p+3}$$

$n_g = N_g - q$ where N_g is the sample size for group g.

Thus

$$n = \sum_{g=1}^{G} n_g$$

$$\log w = \left\{\log v + 1/2\ pn \log n - 1/2\ p \sum_{g=1}^{G} n_g \log n_g\right\}$$

$$\log v = \sum_{g=1}^{G} 1/2\ n_g \log |A_g| - 1/2\ n \log |B|$$

where $|A_g|$ is the determinant of the residual cross-product matrix for group g, and $|B|$ is the determinant of the residual cross-product matrix under the null hypothesis.

Table Q-2

ANCOVA MODEL PARAMETERIZATION FOR K AND EF GRADE STREAMS

Variable Number		Variable Description
X_1	=	Constant
X_2	=	Age
X_3	=	Male effect
$(-X_3$	=	Female effect)
X_4	=	High-school education*
X_5	=	College education*
X_6	=	Missing data or unknown education*
$(-\sum_{i=4}^{6} X_i$	=	Grade-school education)*
X_7	=	Medium-to-high-status occupation*
X_8	=	Missing data or unknown occupation*
$(-\sum_{i=7}^{8} X_i$	=	Low-status occupation)*
X_9	=	Days absent
X_{10}	=	Baseline WRAT

---

* These variables are not used in Chapter VIII because of problems of missing data.

Table Q-3

COMPARISON OF SPONSORS

Sponsor	Sample Size	Determinant of Residual
K Grade Stream		
FW	73	.46378538E* + 22
UK	79	.76067907E + 22
HS	65	.37248303E + 21
ED	72	.12585713E + 23
IL	76	.39913103E + 22
SE	48	.30375068E + 21
NFT	240	.12523504E + 27
Overall	612	.30896756E + 30
ef Grade Stream		
UA	71	.31078267E + 23
BC	110	.32209546E + 25
UG	85	.40395100E + 23
UO	81	.96805638E + 23
UF	90	.59400339E + 24
NFT	212	.28480480E + 27
Overall	649	.13067609E + 31

---

* The notation YE± x means multiply y by $10^{\pm x}$.

or the sponsor summary variable. This suggests that the sponsors' effects can be characterized for the one-way multivariate analysis of covariance model using the covariables shown in Table Q-2. However, the power of this test is unknown.

In order to examine the problem of missing data, the regression runs used to obtain the data shown in Table Q-3 were also used to test the following (multivariate) hypotheses:

(1) That the regression weights for the covariables shown in Table Q-2, except for the constant term, were zero (one hypothesis).

(2) That the regression weights for each covariable (considering the education variables simultaneously as one covariable called "education," and the occupation variables simultaneously as one variable called "occupation") were zero (six hypotheses).

(3) That the difference between unknown or missing education background and each of the other education variables was zero (three hypotheses).

(4) That the difference between unknown or missing occupation and the other occupation variables is zero (two hypotheses).

The results of the tests of these hypotheses are given in Table Q-4. Surprisingly, in view of the fact that the test for homogeneity of regression and covariance matrices were rejected, the results of these hypothesis tests vary somewhat from sponsor to sponsor. It is evident that no covariable is remarkably powerful except for the baseline WRAT. The fact that there is no large consistent effect due to missing data suggests that earlier studies that ignored missing data probably did not bias their results as a consequence. However, there are definite differences in the pattern of F statistics among sites. For example, in sponsors Far West Lab and U. Arizona, the test of the equality of the effect of missing data versus the other effects all produce F statistics of about the same magnitude. For sponsors Bank Street and U. Oregon, this is not the case for the occupation variable. In fact, the largest F value is associated with Test 11 for sponsor Bank Street, and Test 12 for sponsor U. Oregon.

These patterns suggest that the effect of ignoring cases with missing data is different at different sites. In some sites, such as Southwest Lab, those with missing education data are evidently most similar to those with a high-school education, in U. Florida they are most similar to those with a grade-school education. Presumably, the result of deleting the

Table Q-4

RESULTS OF MULTIVARIVARIATE HYPOTHESIS TEST BASE
BY SPONSOR* AND GRADE STREAM

K Grade Stream	FW				UK				HS				ED			
	F	Degrees of Freedom		P	F	Degrees of Freedom		P	F	Degrees of Freedom		P	F	Degrees of Freedom		P
1. All covariables	2.23	63	327	≤ .01	2.19	63	361	≤ .01	1.96	63	282	≤ .01	1.74	63	322	≤ .0
2. Age	1.45	7	57		.30	7	63		1.26	7	49		.15	7	56	
3. Sex	.36	7	57		1.41	7	63		.14	7	49		.56	7	56	
4. Education	1.53	21	164	≤ .05	1.09	21	181		1.10	21	141		.98	21	161	
5. Occupation	.94	14	114		.33	14	126		.81	14	98		.93	14	112	
6. Days absent	.31	7	57		2.46	7	63	≤ .05	.83	7	49		.44	7	56	
7. Baseline WRAT	14.28	7	57	≤ .01	8.08	7	63	≤ .01	9.59	7	49	≤ .01	11.43	7	56	≤ .0
8. Missing ed. data vs. high school	1.24	7	57		1.27	7	63		1.16	7	49		.83	7	56	
9. Missing ed. data vs. college	1.43	7	57		1.42	7	63		1.47	7	49		1.10	7	56	
10. Missing ed. data vs. grade school	1.38	7	57		1.24	7	63		1.71	7	49		.69	7	56	
11. Missing occ. data vs. high starting occupation	1.37	7	57		.39	7	63		.81	7	49		.59	7	56	
12. Missing occ. data vs. low starting occupation	1.26	7	57		.23	7	63		.58	7	49		.64	7	56	

ef Grade Stream	UA				BC				UG				UO			
	F	Degrees of Freedom		P	F	Degrees of Freedom		P	F	Degrees of Freedom		P	F	Degrees of Freedom		P
1. All covariables	1.81	63	316	≤ .01	2.50	63	536	≤ .01	2.82	63	395	≤ .01	3.01	63	372	≤ .0
2. Ages	1.70	7	55		.91	7	94		1.79	7	69		1.32	7	65	
3. Sex	.81	7	55		.99	7	94		1.06	7	69		2.03	7	65	
4. Education	.46	21	158		.68	21	270		1.68	21	199	≤ .05	.80	21	187	
5. Occupation	.90	14	110		.88	14	188		1.04	14	138		1.11	14	130	
6. Days absent	2.44	7	55	≤ .05	1.46	7	94		.58	7	69		2.98	7	65	≤ .0
7. Baseline WRAT	8.73	7	55	≤ .01	16.74	7	94	.01	13.80	7	69	≤ .01	16.05	7	65	≤ .0
8. Missing ed. data vs. high school	.17	7	55		.93	7	94		2.29	7	69	≤ .05	.55	7	65	
9. Missing ed. data vs. college	.50	7	55		.75	7	94		4.06	7	69	≤ .01	1.56	7	65	
10. Missing ed. data vs. grade school	.43	7	55		.52	7	94		1.80	7	69		.36	7	65	
11. Missing occ. data vs. high starting occupation	.57	7	55		1.40	7	94		1.88	7	69		.94	7	65	
12. Missing occ. data vs. low starting occupation	.60	7	55		.94	7	94		1.52	7	69		1.65	7	65	

*UP data not used because its equation was singular.

Table Q-4

ATE HYPOTHESIS TEST BASED ON ANCOVA MODEL
PONSOR* AND GRADE STREAM

ED				IL				SE				All NFT				Overall for K Grade Stream			
F	Degrees of Freedom		P	F	Degrees of Freedom		P	F	Degrees of Freedom		P	F	Degrees of Freedom		P	F	Degrees of Freedom		P
1.74	63	322	≤ .01	2.26	63	344	≤ .01	2.30	63	186	≤ .01	6.21	63	1268	≤ .01	10.62	63	3329	≤ .01
.15	7	56		2.46	7	60	≤ .05	4.70	7	32	≤ .01	1.26	7	224		1.04	7	590	
.56	7	56		.38	7	60		2.60	7	32	≤ .05	2.43	7	224		2.11	7	590	
.98	21	161		.86	21	173		1.48	21	92		1.42	21	644		1.51	21	1695	
.93	14	112		.78	14	120		1.89	14	64		2.09	14	448		1.10	14	1180	
.44	7	56		1.07	7	60		1.94	7	32		6.63	7	244	≤ .01	3.41	7	590	≤ .01
11.43	7	56	≤ .01	11.90	7	60	≤ .01	5.28	7	32	≤ .01	35.99	7	244	≤ .01	90.38	7	590	≤ .01
.83	7	56		.69	7	60		.79	7	32		.88	7	244		1.71	7	590	
1.10	7	56		.37	7	60		3.85	7	32	≤ .01	1.22	7	244		1.06	7	590	
.69	7	56		.67	7	60		.33	7	32		1.68	7	244		1.20	7	590	
.59	7	56		.86	7	60		1.22	7	32		2.87	7	244	≤ .01	1.79	7	590	
.64	7	56		.64	7	60		.90	7	32		3.32	7	244	≤ .01	1.88	7	590	

UO				UF				All NFT				Overall for ef Grade Stream			
F	Degrees of Freedom		P	F	Degrees of Freedom		P	F	Degrees of Freedom		P	F	Degrees of Freedom		P
3.01	63	372	≤ .01	2.86	63	423	≤ .01	6.25	63	1110	≤ .01	13.31	63	3543	≤ .01
1.32	7	65		1.48	7	74		1.11	7	196		3.48	7	628	≤ .01
2.03	7	65		.62	7	74		3.35	7	196	≤ .01	4.35	7	628	≤ .01
.80	21	187		1.25	21	213		1.83	21	563		1.88	21	1804	
1.11	14	130		1.87	14	148		4.04	14	392	≤ .01	4.35	14	1256	≤ .01
2.98	7	65	≤ .01	1.30	7	74		2.84	7	196	≤ .01	4.41	7	628	≤ .01
16.05	7	65	≤ .01	19.26	7	74	≤ .01	31.07	7	196	≤ .01	96.20	7	628	≤ .01
.85	7	65		1.46	7	74		1.26	7	196		1.14	7	628	
1.56	7	65		1.07	7	74		1.42	7	196		2.34	7	628	≤ .05
.36	7	65		.54	7	74		1.03	7	196		.79	7	628	
.94	7	65		2.16	7	74	≤ .05	1.04	7	196		1.57	7	628	
1.65	7	65		1.83	7	74		1.25	7	196		1.93	7	628	

cases with missing data would be to "over-represent" the more educated in Tupelo while underrepresenting them in Philadelphia.

When the F statistics for some of these tests are large and nearly equal, or all significant, as in the case for pooled Non-Follow Through, it is possible that those with missing data are not similar to any of those with the corresponding data present. That is, they are representative of a group that would not otherwise be represented in the study. These considerations, plus the fact that the socioeconomic variables that have the missing data are not powerful, lead to solving the missing data problem by deleting the variables instead of the cases. The models used in Chapter VIII do not include data from the parent interviews.

Appendix R

THE USE OF CATANOVA STATISTICS IN THIS REPORT

Appendix R

THE USE OF CATANOVA STATISTICS IN THIS REPORT

The CATANOVA is a relatively new procedure that was introduced by Light and Margolin in 1971. The test is based on an analog of the conventional one-way analysis of variance.

In this analog for N Cases, G groups, and I categories is a "Total sum of squares (TSS)," a "Between sum of squares (BSS)," and a "Within sum of squares (WSS)." One may then define

$$R^2 = \frac{BSS}{TSS}$$

where TSS = BSS + WSS,

This measure has the properties:

(1) $0 \leq R^2 \leq 1$

(2) $R^2 = 0$, if and only if the sample distributions within each group are identical.

(3) $R^2 = 1$, if and only if one can predict perfectly the category given the group.

Light and Margolin show that the asymptotic distribution of:

$$(N-1)(I-1)\ R^2$$

is χ^2 with (I-1)(G-1) degrees of freedom, under the null hypotheses that all groups have the same proportion of each category. The usefulness of the R^2 statistic for this analysis is that it can be used in the same manner as the square of a correlation coefficient or the correlation ratio (η^2). η^2 is commonly used as a means of assessing the strength of the relationship in a given data set (W. C. Hays, 1963). The availability of R^2 and its associated nonparametric significance test means that it is not necessary to depend on the significance level based on normal theory for guidance as to the importance of a relationship. However, the heuristic does depend on significance levels since it can be shown that a function of R^2 is χ^2, so that choosing R^2 of a given magnitude is equivalent to choosing χ^2 with a given p value. The reader interested in more detail about the relationship of R^2 to χ^2 is referred to the original article.

Appendix S

UNADJUSTED MEANS AND STANDARD DEVIATIONS ON DEPENDENT VARIABLES BY GRADE LEVEL/STREAM AND SPONSOR

Table S-1

UNADJUSTED MEANS AND STANDARD DEVIATIONS ON DEPENDENT VARIABLES BY GRADE LEVEL/STREAM AND SPONSOR

Entering Grade: Kindergarten

Grade Level/ Stream	Dependent Variable	Sponsor														Pooled NFT	
		FW		UK		HS		ED		UP		IL		SE			
		$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD
K	MAT Q	11.5	7.9	20.4	6.8	7.8	3.6	10.9	4.6	19.6	7.4	10.6	3.8	8.6	4.1	10.6	5.5
	WRAT Q	15.8	3.1	18.2	4.0	12.2	3.8	14.6	3.7	19.0	2.9	13.3	4.1	10.4	4.1	13.8	4.4
	MAT R	28.7	10.6	40.4	10.1	24.1	8.4	31.3	9.6	42.0	10.8	27.9	6.3	20.1	9.6	28.3	10.3
	WRAT R	20.5	4.7	23.0	5.0	14.3	4.7	17.5	6.0	22.7	3.6	17.0	5.3	13.4	4.5	17.7	5.9
	PEABODY	57.4	6.2	52.3	7.5	48.4	5.9	43.5	10.0	60.2	5.8	43.1	8.7	39.2	15.2	49.2	12.0
	GUMPGOOKIES	49.3	8.1	49.9	7.2	45.4	9.5	45.9	8.5	49.0	10.1	44.4	9.2	44.8	8.6	47.5	8.7
	LOCUS	10.8	2.9	10.5	2.8	9.6	2.7	9.4	3.7	11.3	2.2	9.5	3.1	7.4	4.4	9.9	3.1
1/ek	MAT Q	36.7	12.1	39.2	12.4	13.3	6.4	23.4	10.0	49.7	9.6	19.6	7.6	37.9	12.7	30.5	14.9
	MAT R	70.5	21.3	72.5	25.6	35.9	9.4	49.7	19.8	103.4	12.8	43.4	11.6	66.3	21.4	64.9	27.3
	GUMPGOOKIES	53.0	5.0	52.9	5.9	51.1	6.0	51.6	6.8	51.9	6.6	48.8	7.1	51.0	6.5	52.6	5.9
	LOCUS	13.3	2.3	12.8	2.9	11.0	2.1	11.1	3.0	13.8	2.2	10.8	3.3	11.2	1.9	12.0	3.1
2/ek	MAT Q	57.6	19.3	64.9	23.9	--	--	--	--	79.5	14.8	50.6	14.7	58.4	22.3	55.5	19.1
	MAT R	75.8	27.1	75.2	31.5	--	--	--	--	102.1	16.1	64.0	30.3	63.1	23.7	67.7	29.6
	RAVEN'S	20.2	3.7	15.6	5.7	--	--	--	--	23.1	3.7	15.2	4.7	14.5	4.0	16.9	5.1
	COOPERSMITH	19.9	5.3	19.8	4.6	--	--	--	--	21.7	4.5	18.8	4.1	18.9	4.1	18.5	4.6
	IAR	11.7	2.5	11.8	3.0	--	--	--	--	13.3	2.5	11.2	3.0	11.3	2.5	11.3	2.7

Table S-2

UNADJUSTED MEANS AND STANDARD DEVIATIONS ON DEPENDENT VARIABLES BY GRADE LEVEL/STREAM AND SPONSOR

Entering Grade: First

Grade Level/ Stream	Dependent Variable	Sponsor												Pooled NFT	
		UA		BC		UG		UO		HS		UF			
		$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD
1/ef	MAT Q	25.1	12.8	30.1	12.3	33.0	13.4	28.0	11.7	--	--	22.3	11.8	28.1	13.1
	WRAT Q	20.3	2.9	19.1	4.3	20.8	3.2	19.9	3.5	--	--	18.9	3.9	19.7	4.2
	MAT R	48.2	20.6	56.6	24.4	67.0	26.4	61.4	24.8	--	--	42.3	18.8	57.3	26.3
	WRAT R	29.1	5.7	31.9	4.7	32.4	4.7	29.3	7.6	--	--	27.1	6.2	29.6	7.0
	PEABODY	57.9	6.4	49.7	8.7	57.7	7.9	51.8	7.1	--	--	52.6	9.4	55.7	10.2
	GUMPGOO[illegible]	52.1	6.7	50.4	7.1	52.5	6.7	49.9	8.8	--	--	47.9	10.2	51.2	6.9
	LOCUS	12.7	2.8	11.5	3.1	12.9	3.1	11.5	3.3	--	--	11.8	3.2	12.3	2.6
2/ef	MAT Q	50.6	17.1	48.6	17.3	64.0	18.9	44.7	14.1	28.1	10.7	42.7	20.2	51.6	18.4
	MAT R	56.4	23.1	49.5	19.4	75.0	24.5	58.0	26.9	33.8	6.8	43.8	17.5	59.0	28.0
	RAVEN'S	16.9	4.6	13.0	5.2	17.0	5.4	11.6	4.2	12.5	3.5	14.0	4.0	15.0	5.6
	COOPERSMITH	18.7	4.5	18.0	4.9	21.3	4.1	17.8	3.9	17.9	3.9	17.3	5.1	18.9	4.9
	IAR	10.0	2.9	11.0	2.9	10.5	2.8	11.3	3.2	10.0	2.8	9.6	3.0	11.3	3.2
3/ef	MAT Q	32.4	15.4	45.7	17.0	59.5	18.9	46.3	19.6	30.0	13.8	36.8	13.5	43.1	22.6
	MAT R	46.6	20.2	50.6	22.3	64.0	22.2	57.7	20.8	31.3	17.5	40.2	16.5	54.1	27.1
	RAVEN'S	18.5	4.8	16.9	5.3	17.9	5.1	15.3	5.3	16.1	4.9	16.3	4.7	17.8	5.6
	COOPERSMITH	19.9	4.4	20.6	4.1	19.5	4.4	21.2	5.7	19.2	4.2	19.3	3.3	19.9	4.5
	IAR	11.1	2.9	12.2	3.5	12.1	3.1	12.7	3.1	10.8	2.9	10.2	2.5	11.6	3.1

Table S-3

MEANS AND STANDARD DEVIATIONS

ON BASELINE WRAT BY GRADE LEVEL/STREAM AND SPONSOR

Entering Grade: Kindergarten

Grade Level/Stream	Sponsor															
	FW		UK		HS		ED		UP		IL		SE		Pooled NFT	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
K	30.4	11.3	33.3	12.2	18.6	8.0	23.8	11.9	37.0	10.8	20.5	9.7	22.3	11.1	24.5	12.3
1/ek	39.9	14.4	37.2	16.4	21.9	10.4	30.7	14.7	45.6	11.1	25.0	14.8	30.9	13.1	32.3	16.0
2/ek	22.2	7.3	25.2	7.4	--	--	--	--	29.6	5.4	19.5	7.6	16.2	5.2	22.2	8.1

Entering Grade: First

Grade Level/Stream	Sponsor													
	UA		BC		UG		UO		HS		UF		Pooled NFT	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1/ef	46.3	12.1	48.1	12.4	44.8	12.6	36.5	16.2			42.2	13.1	44.0	13.4
2/ef	41.1	13.6	38.2	15.7	49.8	11.2	32.7	16.8	25.7	12.6	35.4	12.5	46.4	12.3
3/ef	30.2	5.8	31.1	6.4	31.3	4.9	28.0	5.6	24.6	6.3	27.6	6.8	29.3	6.1